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ORIGINAL LECTURES.

ON AZOTIZED ALIMENTS.[1]

A Lecture on Hygienic Therapeutics.

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GENTLEMEN: In a previous lecture we have considered the complete aliments—*i. e.*, foods which, by the proper association of their primordial alimentary principles, suffice for all the needs of nutrition. To-day we shall take up the complex aliments, a subject of much vaster extent, for man, being omnivorous, the variety of foods which he employs for his sustenance is very large.

First in order come foods from the animal kingdom. These constitute the azotized aliments *par excellence*, and comprehend meats, fish, mollusks, and crustaceans.

As for aliments of vegetable origin, we shall study successively cereals, vegetables, and fruits. Fatty foods present three divisions: fats, oils, and butter. Lastly, beverages are divisible into water, aromatic beverages, and spirituous beverages. The following table gives a summary of these divisions:

- Complex aliments
  - Azotized aliments
    - Meats.
    - Fish.
    - Mollusks.
    - Crustaceans.
  - Vegetable aliments
    - Cereals.
    - Vegetables.
    - Fruits.
  - Fatty aliments
    - Oils.
    - Fats.
    - Butter.
  - Beverages
    - Water.
    - Aromatic beverages.
    - Alcoholic beverages.

Before entering upon the study of each of these divisions, I must say a few words about nutribility and digestibility.

If the first of these terms is easy to define, and means simply the nutritive value of the aliment, being estimated by the quantity of reparative forces which the aliment furnishes, it is not so with digestibility—and of all the definitions which have been given of this word the best is that given by Trousseau, in one of his theses: "The most digestible food is that which furnishes to the economy the largest quantity of reparative elements while demanding the least labor on the part of the digestive organs."[2]

Numerous have been the experiments made to determine the relative digestibility of foods. To mention only those practised on man, some have taken advantage of fistulous openings made in the stomach, the result of accident or surgical operation, as in the case of Beaumont with his Canadian, Alexis St. Martin; of Charles Richet with Marcellin; of Herzen of Lausanne, with Henri Baud. Others, as Londe, Lallemand, and Braune, have made their observations on patients that were the subjects of artificial anus situated in some part of the intestinal canal more or less distant from the stomach. Others, like Goss, of Geneva, have profited by the faculty which they possessed, of vomiting at will; still others, like Leube, have made use of the operation of lavage of the stomach for purposes of experimentation.

All these physiologists aimed to see with what rapidity a substance introduced into the stomach will disappear from the digestive tube. But from the fact that certain aliments when ingested by the mouth rapidly traverse the alimentary canal, it does not follow that they are speedily digested; it is, above all, necessary that they shall yield to nutrition the primordial alimentary principles which they contain. The state of cohesion of foods has a great deal to do with their digestibility; the feebler this cohesion, the easier of digestion is the substance. This explains why it is that the flesh of young animals is more digestible than that of old—*i. e.*, veal than beef, chicken than old fowl. We see, also, why it is that meat-powders, by reason of their state of minute division, are more readily assimilated than meat. We also understand from this fact the necessity of mastication, and how it is that when persons are deprived of their teeth they are likely to become dyspeptical. This is what you will often observe in old people, and in people who eat too rapidly. Mialhe considers imperfect mastication as the most frequent cause of indigestion. I am inclined to think that he is not far from right, and will show you how you can easily remedy this evil in certain cases of dyspepsia by means of special instruments.

I place before you two of these apparatuses, called *meat pulpifiers*, or *pulverizers*, which are of great service in these forms of dyspepsia. They are both of Collin's invention. One is designed to reduce to pulp a great quantity of raw meat. The other is an instrument for the table, which is applicable to cooked meat. I shall say but little about the first of these apparatuses, which, despite the ease and thoroughness of its working, is too costly for ordinary use. The other instrument, called the *table pulpifier*, is a very simple and convenient one. I have ordered it in a great many cases, and it has always given good satisfaction. As you see, it is a veritable meat shearer. (Fig. 1.)

You place the piece of roasted meat in the open part of the apparatus, and cover it with the movable lid; you close the instrument with your left hand, and with your right you work back and forth the handle of the mobile lid, and in a few seconds you have in your plate a meat-pulp of exceeding fineness, which has lost nothing of its aroma or savor.

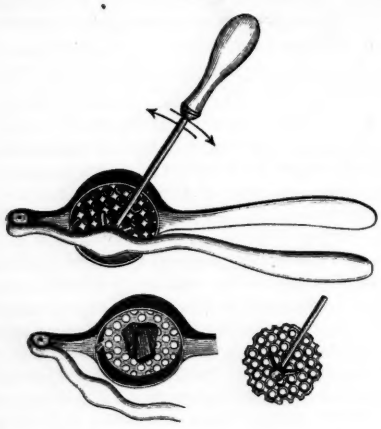
The other instrument has been modified by Galante, under the direction of Debove, from an American apparatus in use by pork-butchers. It is a very handy instrument, easily taken to pieces and cleaned, and acts

[1] Translated, from advance sheets, by E. P. Hurd, M.D., of Newburyport, Mass.

[2] Trousseau, Thèse de Concours, 1838.

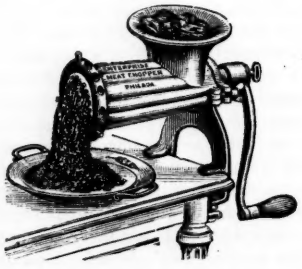
equally well on both raw and cooked meats; with cold boiled meat it produces a fine meat powder, with raw

FIG. 1.



meat, a homogeneous pulp. You here see the ease with which it works, and how perfectly the meat which enters at the funnel is converted into pulp. (Fig. 2.)

FIG. 2.



I cannot too highly recommend these instruments whenever you have to do with dyspepsia from imperfect mastication, or the so-called atonic dyspepsias; you will by this means favor the peptonization of albuminoid aliments and render them more assimilable.

Nutribility and digestibility rarely go together. We may even say that there is generally opposition between the two terms, the most digestible foods being ordinarily the least nutritive. Thus, fat, which plays so prominent a reparative part in our economy, is one of the alimentary principles the dissociation and assimilation of which are the most slow and difficult. Fatty aliments are very nutritious, but of little digestibility, and you will find sufficient confirmation of this fact in the details into which I am going to enter *à propos* of the different complex aliments.

But I shall now in this connection acquaint you with the results of some very curious experiments recently made by Bikfalvi. This physiologist in operating on dogs, and in employing the old method of Spallanzani, which consists, as you know, in making animals swallow little bags containing alimentary substances, has shown that in the dog the following quantities of certain aliments were digested in the space of two hours:

Uncooked casein . . .	25	per cent.
Cooked white of egg . .	48	"
Uncooked cervical ligament .	49.5	"
Uncooked liver . . .	52.5	"
Uncooked kidney . . .	55.33	"
Cooked beef	58	"
Raw unstriped muscular tissue	68.5	"
Raw beef	79.5	"
Raw hyaline cartilage . .	81	"
Raw fibrin	97.5	"
Uncooked pulmonary tissue .	99.5	"
Raw tendons	99.5	"

Hence Bikfalvi concludes that gelatinous substances are the most speedily digested in the stomachs of carnivora. But these substances, if they are very digestible from the point of view of the stomachal digestion, furnish a very small sum of reparative elements to nutrition.

I pass now to the study of foods derived from the animal kingdom; we have divided them, as you know, into meats, fish, crustaceans, and mollusks. Do not expect of me a complete study of the various kinds of meat, and what I have here to present will be in the form of a brief summary.

Here is the analysis of a fillet of beef, according to Berzelius. You see the prominent part which water has in its composition. I shall return to this point when I come to speak of meat powders, as compared with raw meat, the former in equal bulk being much the more nutritious.

Muscular fibrin	16
Albumen	2
Gelatine	2
Osmazome and alkaline lactates . .	3
Water	77
	100

Cast your eyes over the following table borrowed from Moleschott. It gives you the centesimal composition of the different meats:

	Beef.	Veal.	Pork.	Venison.	Birds in general.
Soluble albumen and hæmatin	2.25	2.27	1.63	2.10	3.13
Musculine and like principles	15.21	14.30	15.50	16.68	17.13
Substance gelatinizing by heat	3.21	5.01	4.08	0.50	1.40
Fats	2.87	2.56	5.73	1.90	1.95
Extractive matters . .	1.39	1.27	1.29	2 52	1.92
Creatine	0.07	.....	.....	.....	0.20
Ash	1.60	0.77	1.11	1.12	1.30
Water	73.39	73.75	70.66	76.17	72.98
					100.00

The nutritive value of these meats is estimated by the quantity of musculine which they contain. This is almost equal for all the meats, oscillating between 14 and 16 per cent. As the fat was removed from these meats prior to analysis, we have not here exactly their nutritive value, for in this respect pork should have the first place, which, in the table, is assigned to venison. The latter meat is especially rich in nutritive elements, from the fact that it is not deprived of its blood when slaughtered, as is the case with the domestic animals, and this circumstance explains why game is so much more nourishing than butcher's meat.

I ought here to make a special mention of horse-flesh, which is extremely nutritious, and in respect of its nutritive value resembles venison. The consumption of this meat increases every day, as you can judge from the following table, which gives the number of horses sold for food in the shambles of Paris during the last ten years.

Years.	Number of horses butchered for food.
1876	8,713
1877	9,908
1878	10,800
1879	10,081
1880	8,602
1881	8,684
1882	10,365
1883	12,267
1884	14,432
1885	16,137

I can but commend this extension given to the consumption of horse-flesh, which is a very nourishing meat, and renders great service to the poor population of our large cities.

Meats are prepared in a thousand ways, and the question has long been discussed whether cooking adds to their nutritive value. This question seems to-day to be decided, and if cooking does not augment the nutritiousness of meats, it nevertheless add to their digestive value by the appetency which it excites in persons who make use thereof. I will explain:

The primitive man used to eat raw meat, but as soon as he discovered fire, cooking came into fashion. The Troglodytes, the prehistoric men of Vezère, ate roasted meats, and we have the proof of this in the bones dug up at the entrance of their caves. This preference for cooked meats is due to the agreeable odor, and to certain products, such as osmazome, which are formed during cooking, and which constitute an aroma which promotes a more abundant secretion of gastric juice.

The popular saying, "one's mouth waters at the sight of a good meal," is absolutely conformable to the data of physiology, and we have here a phenomenon of reflex origin, which takes place whenever we see or smell savory meats. The salivary secretion is not the only one which is augmented under such circumstances; there is also a hypersecretion of gastric juice, as is noticed in persons who are subjects of a fistula of the stomach. This reflex complexus constitutes what has been described under the name of *appetency*, a condition which is not realized in the case of raw meat, which is not agreeable to taste, or sight, or smell, and is repugnant to most patients.

At the same time, raw meat has rendered and still renders us great service from a therapeutic point of view, and since first Weiss of St. Petersburg showed us all the advantages which we might derive from this kind of food in affections of the stomach and intestines, it has come into general use, not only in diarrhœa and certain forms of dyspepsia, but even in consumptive complaints, and, in particular, in pulmonary tuberculosis, where it has proved to be an excellent nutrient and restorative agent. Hence it is that the modes of preparation of raw meat have been multiplied.

With regard to this aliment, the most appropriate form for its administration to young children is the combination with fruit jelly, whether of currants or prunes, as in Trousseau's famous *Conserve of Damas*, which he prescribed so often in infantile diarrhœas; such a mixture is not, however, so suitable for adults, hence other expedients have been resorted to to render the food palatable. Some propose to administer it in little boluses about the size of bullets, a great many of which are to be swallowed during the day, or the raw meat is incorporated with broth, or in a kind of porridge, called by Laborde, *medicinal tapioca porridge*. To prepare it, you incorporate with a thin and well-flavored porridge of tapioca from one to two ounces of raw beef; you have thus a mixture which resembles, by its color, tomato soup, and is quite agreeable to the taste; you can also combine the raw meat with mashed eggs, potato stew, or spinach.

But whatever be the procedure adopted, it is necessary that the meat shall be reduced to a very fine pulp, and for this purpose you can make use of a simple knife, or of the special apparatuses of which I have just spoken.

As you are well aware, the ingestion of raw meat may be a cause of tapeworm in the human subject, and doubtless the frequency of the unarmed tænia of late years is due to the use of raw meat; therefore, when Debove proposed to substitute meat-powder, there was a general disposition to accept the substitution.

I cannot, in this place, repeat what I have many times said as to the preëminent utility of meat-powders, both in my Clinical Therapeutic lectures and in my *New Medications*.[1] The advantages of these powders result from that molecular state which permits their easy peptonization, and from their special nutritiousness, since they are deprived of the 77 per cent. of water which fresh meat contains. Quite recently, Poincarré has taken up again this question of the nutritive value of meat-powders, and the conclusions which he has deduced from his experiments are contradictory to the results which Debove and I have obtained, and, I believe, to his own researches.[2]

Poincarré's experiment consisted in taking three dogs and subjecting them during equal and alternate periods, at one time to the ordinary meat-diet, at another to a diet of bread soaked in plain water, at another to a diet of meat-powder, at still another to a mixed diet of meat-powder and bread; successive weighings enabled him to note the results obtained. These results were as follows: the meat-powder, while possessing a nutritive value superior to that of bread, even when accompanied by broth, was inferior to fresh meat. But Poincarré takes the pains to tell us that the dogs loathed the meat-powder, and that it was only when driven to extremities of hunger that they would eat it. So that, for the experiment to be a fair one, he would have been obliged to perform forced feeding, in which event he would have seen the incontestable advantage of meat-powder, an advantage which no one to-day disputes. The results which Debove has witnessed, those recorded in the thesis of my pupil, Pennel, those of Broca and Wins, and those which I have inva-

[1] Diseases of the Stomach and Intestines (Wm. Wood & Co.) p. 38. New Medications (G. S. Davis), chap. iii.

[2] Poincarré, Experimental Researches on the Nutritive Value of Meat Powders; Annales d'Hygiène, 1886.

riably obtained, have recently been confirmed by Peiper, at the clinic of Greifswald.

If the dog loathes the powder of meat, it is the same with man, and it is only by artifices that we can render this aliment acceptable. These artifices consist, as you know, in incorporating the meat-powder with chocolate, or in giving it in the form of meat-grog, and which is made in the following way: Place in an empty bowl a couple of tablespoonfuls of meat-powder, add one or two tablespoonfuls of old rum or Bourbon, and half a pint of milk or water, sweetened sufficiently.

The fabrication of meat-powder is, to-day, carried out on a large scale; some of these preparations are peptonized before being delivered to the market. You can easily make it yourself if you prefer, by taking a certain quantity of boiled meat, cutting it into little pieces and drying it thoroughly by a water-bath; the desiccated product is then reduced to a powder in a coffee-mill, or in Galante's apparatus. These meat-powders do us excellent service in forced alimentation, as I shall hereafter have occasion to show you.

There has been much difference of opinion as to the alimentary value of broth, some denying its nutritiousness, which others persist in affirming. When you glance over the following analysis by Chevreul, you will see that broth by itself is of little nutritive value, containing 98 per cent. of water, and only 1.6 per cent. of organic matter:

Water	985.600	per 1000.
Solid organic substance dried in vacuo at 20° C.	16,917	28 per 1000.
Soluble salts, chlorides, phosphates, and sulphates of potash and soda	10,720	
Phosphates of magnesia and lime (insoluble, or but slightly soluble)	0.539	

Hence, from this point of view, we might affirm that soup is not nutritious, but, as Schiff has shown, its *rôle* is quite different. Soup is a peptogenous substance which increases the secretion of gastric juice, and the experiments of Herzen of Lausanne are, in this respect, decidedly confirmatory of those of Schiff. By experiments made on a man who was the subject of a gastric fistula (Herzen, *Stomachal Digestion*, Lausanne, 1886), the former obtained the following results, which put in clear light the value of "peptogens" in digestion.

Duration of the digestion.	Percentage of albumen digested.	
	Without peptogens.	With peptogens.
One hour	2.33	12
Two hours	23.66	45
Three hours	51.00	76

You know that dextrine, like broth, possesses these peptogenous properties. We have here the scientific justification of a common culinary custom of adding bread to broth, and particularly toasted bread, which, by the presence of dextrine, augments the peptogenous properties of the broth. It is on the same principle that soup is an excellent preparation for the meal that is to come, as it augments the secretion of gastric juice necessary for digestion.

I shall not here take up the various formulæ which have been prepared for making broth. At the same time, as you will often be consulted as to the proportions respectively of meat and of water to employ, I will give you a few suggestions. For a quart of water the quantity of meat should vary between half a pound and a pound, according as meat with bones or without bones is used. The following is the formula of our hospital broth:

Take of

Raw meat freed from bones	1 kilo.
Water	4 litres.
Fresh vegetables	400 grammes.
Common salt	10 grammes.

In England great use is made in the hospitals of beef-tea, which is made in the following way: Take one pound of beef freed from all fat, add its own weight of water and boil for several minutes, then strain with compression; add salt and other seasoning which may be deemed necessary, the taste of the product being always insipid.

Lastly, we make great use of a kind of broth called "American bouillon," which is of considerable nutritive value, and is made as follows: Place in an iron kettle alternate layers of meat and of vegetables, cover the pot, and subject the whole, without the addition of water, to prolonged cooking over a hot water-bath; at the end of six hours or so, you strain off the contents of the kettle, and you thus obtain a true meat-jelly, which is very palatable and nourishing, and which you may administer by itself, a small cupful at a time, or dissolved in ordinary broth.

I shall have finished what I purposed to say about meats, after making a brief allusion to blood.

Taking too literally the assertion in Leviticus, "The life of all flesh is the blood thereof," many have thought that blood must be an exceedingly nutritious food, and that it might be advantageously applied to the treatment of a great number of affections, and, in particular, anæmia and all wasting diseases. Various ways have been proposed for thus utilizing blood as food: some have recommended that the blood shall be drank just as it flows from the living animal, and hence it is that we see at our slaughter-houses, every morning, great numbers of people flocking there to drink the warm blood of the animals as they are killed. Others, as Paul Bert, Regnault, Guerder, and Le Bon, have counselled desiccated blood, and have made thereof powders which are now in use, like the meat-powders.[1] In Italy, Emilio, of Naples, has given the name of *trefusia* to this powder of dried blood, and he has obtained from it good effects as a food and as a medicament. Still others, as my pupil, Deschiens, have extracted from blood the coloring part of the globules, the hæmoglobin, and have made preparations of it, which you have seen used to advantage in my hospital.

As an exclusive aliment, blood is absolutely insufficient, and the experiments of Magendie and of Payen have shown that, despite the ingestion of 1000 grammes of blood per day, their dogs succumbed to starvation

[1] Guerder: On the Use of Blood-powder in Forced Alimentation, Therapeutic Gazette, Feb. 1884; D. Emilio, Trefusia, Naples, 1886.

about the twenty-fifth day when fed on blood alone. I recognize, however, that in the treatment of anæmia certain of these preparations, and in particular those of hæmoglobin, are perfectly indicated, but here it is not as a food, but as a medicine, that such preparations do good.

Meats are subjected to the action of the gastric juice, and when this secretion is not sufficient to peptonize them, the work is completed by the pancreatic juice. Richet has given us a good description of the action of gastric juice on the muscular fibril: First, there is imbibition, then dissociation of the fibrils, rupture of the sarcolemma, and finally, the myolemma itself is attacked and converted into fibro-peptone. The portions which escape the action of the gastric juice pass into the intestine, and there undergo the action of the myopsin, which completes the work of peptonization; and if the meat does not contain too much of foreign substances, such as tendons and cellular fibres, the whole passes into the circulation in the state of peptone, leaving very little waste.

Schmidt-Mulheim has studied this question of the residue which albuminoid substances leave when they are digested. He took horse-flesh, well freed from fat and from tendons; this meat was hashed, weighed, and the nitrogen in it was estimated; it was cooked a few minutes; it was then fed to a dog which was killed at the end of a certain time; the contents of the stomach and intestine were then analyzed with the following results:

	Dogs killed after			
	1 hour.	2 hours.	4 hours.	12 hrs.
Stomach dissolved:				
Albumen	2.26	1.79	2.08	0.04
Peptone	3.08	3.65	3.31	0.08
Meat not attacked	50.38	24.49	25.92	0.12
Intestine dissolved:				
Albumen	0.48	0.13	0.43	0.20
Peptone	0.51	0.31	0.49	0.82
Meat not attacked	1.91	1.64	1.91	1.93
Meat ingested (calculated as albumen)	61.15	51.01	65.81	61.70
Albumen absorbed	2.40	18.48	31.19	58.51

These azotized substances are eliminated in the form of urea and uric acid. I cannot pursue this subject further now, requiring, as it does, certain details which will more properly come under the head of superalimentation, and I pass on to the second group of azotized aliments, namely, that of fishes.

From the point of view of its composition, fish resembles meat, and it may be affirmed that its nutritive value is nearly the same. In my *Diseases of the Stomach and Intestines*[1] (page 26), I have given Prof. Almen's table, which shows that, as compared with beef, the flesh of fish is almost as rich in protein matters. The following table from Moleschott shows the similarity which exists between the different white meats, chickens, birds, and fishes:

	Chicken.	Birds in general.	Carp.	Salmon.
Soluble albumen and hæmatin	3.03	3.13	2.93	4.34
Musculine and the like, matter gelatinizing by boiling	16.69	17.13 1.40	10.21 2.02	10.96
Fat	1.42	1.95	9.84	4.79
Extractive matters	0.94	1.92	1.45	1.78
Creatine	0.32	0.20	.....	.....
Ash	1.38	1.30	2.00	1.26
Water	76.22	72.98	78.54	76.86

[1] American edition.

Fishes are divided, from a nutritive point of view, into three groups: fishes with white meat, such as the whiting and the sole; fishes with yellow meat, like the salmon; and fishes with fatty meat, like the eel. Here, too, as in the case of meats generally, it is the fatty meats that are the most nutritious, while they are, at the same time, the least digestible.

The great nutritive value of fish explains why it is that entire populations are able to subsist on this food alone. This ichthyophagy has its advantages and disadvantages; it has been maintained that it predisposes to diseases of the skin, and, we see, even to-day, the school of St. Louis exclude all fish from the dietary of individuals affected with, or predisposed to, cutaneous diseases, while the school of Hebra is much less rigid in this respect, and here it doubtless has reason on its side.

There is no scientific evidence that an exclusive fish diet favors affections of the skin, and if the Norwegians are notoriously subject to leprosy (*spedolskeld*), this is due not to the fact that they live on fish, but to their filthy habits, their utter neglect of the care of the skin, and the rank, greasy garments which they wear.

It has, also, been affirmed that fish, by reason of its richness in phosphorized compounds, augments the reproductive faculties in persons who make free use of this diet, and in support of this statement we are referred to the extraordinary fertility of fish-eating communities. You all know the Oriental story, cited by Brillat-Savarin, where some dervishes who had made a vow of chastity, and who had resisted the charms of a seraglio, and this, despite a full azotized diet, succumbed in an astonishing manner when subjected to a regimen composed exclusively of fish and oysters. For my part, I do not believe in these special properties attributed to a fish diet, and if the populations of our sea coasts are extraordinarily prolific, this is due to other causes than those supposed. Equally unfounded is the notion that piscatorial food favors the predominance of one sex over another, a predominance which Balzac has expressed in the following words: "Salt water fish give girls, butcher's meat produces boys." There are no statistical data in support of this view.

Oysters constitute a very digestible food, and this is due largely to the fact that the "dainty" part of the oyster—the eatable portion—is composed almost exclusively of the liver. The mere crushing of the hepatic parenchyma by the teeth brings the contained glycogen in contact with its digestive ferment, the hepatic diastase, so that the substance of the oyster becomes self-digesting, imposing but little work on the digestive tube. But if its digestibility is great, its nutritive value is feeble. Payen has, in fact, shown that a dozen oysters, weighing 1410 grammes, give in nutritive substance 111.6 grammes, representing 2.3 grammes of nitrogen, or one-tenth of the daily ration of a man, so that ten dozen of oysters would be needed to furnish the azotized elements of a day's alimentary supply.

Payen has also analyzed the integral water of oysters, of which some persons are so fond, and he finds it different from ordinary sea-water in being albuminous, containing 0.86 per cent. of nitrogen. He therefore concludes that oyster-water may be useful as a nutrient, His analysis is as follows:

	First analysis.	Second analysis.
Water	95.38	95.71
Salts (by incineration) . .	3.02	4.24
Azotized organic substances .	0.56	4.24
Organic non-azotized substances	0.52	4.24
	100.00	100.00

[In some parts of the world, and in particular on the coasts of New England, the clam abounds in the flats of river-mouths which are every day overflowed by the tide, and in these localities this little bivalve forms an important article of food. The esculent properties of the clam resemble those of the oyster. Clam-water is an admirable albuminous beverage, suiting the weakest stomachs, and being often tolerated when no other nutrient is borne.]

The mussel is also a bivalve mollusk much used for food. From the point of view of its richness in nitrogen, it is inferior to the oyster—nor is this all, the mussel is likely to contain a poisonous principle.

The danger of poisoning from mussels has given rise the last few years to some very interesting researches.

Brieger, more successful than Salkowski, has isolated a toxic principle, to which he has given the name of *mytilotoxine*, and which has the following composition: $C_6H_{15}NO_2$. He considers this toxic principle as belonging to the group of ptomaines, and believes that these ptomaines form in the liver of these mollusks. Schmidtmann, Virchow, and Salkowski have regarded this shell fish as having a curarizing action, and Langgaard has shown that one of the most powerful antidotes for this toxic agent is caffeine.

By the side of these lamellibranchiate mollusks of the genera Ostria and Mytilus, we must place a gasteropod mollusk, a land snail, to which has been given the name of *poor man's oyster*. I refer to the *Helix pomatia*. or the common snail of the vines. This snail is not only employed for food, but has been supposed to be of use medicinally.

Payen has given us a very complete analysis of the eatable portion of this mollusk, which would seem, from a nutritive point of view, to be superior to the oyster and mussel. The table is as follows:

	Oyster.	Mussel.	Snail.
Water . . .	80.385	75.74	76.17
Nitrogenous matter	14.010	11.72	16.25
Fatty matter. .	1.515	2.42	0.953
Salts (by incineration) . . .	2.695	2.73	2.925
Non-azotized substances . .	1.395	7.39	4.602
	100.000	100.00	100.000

As for the therapeutic properties, and in particular, as for the curative virtues of the snail in bronchitis and in consumptive affections of the chest, I do not know on what scientific basis such properties can be affirmed. Figuier has, indeed, pretended that the snail contains a sulphuretted principle, which he has described under the name of *helicine*, but there is nothing to confirm this statement. However this may be, we have in this mollusk a popular remedy, employed especially in the country, and administered with sugar, in the form of confections or as a broth. This snail broth is made in the following way:

Take of

Edible snails	120 grammes.
Water	1000 "
Capillary leaves . . .	5 "

The snails are placed in the water, which is subjected for two hours to the heat of a water-bath, and the capillary leaves are added and infused for a short time.

The confections, mucilages, and syrups are made by rubbing up the snails in a mortar along with five times their weight of sugar; the resulting liquid is reduced in a water-bath to the desired consistency.

By the side of these mollusks we may place certain crustaceans, represented by the cray fish, the lobster, and the spiny lobster (*langouste*).

Payen has given us a very good analysis of the various eatable parts of the lobster, which shows the considerable nutritive value of these podopthalmian crustaceans, of which the cray fish is the type. If these crustaceans are very nutritive, they are also very indigestible, and they favor, to a certain extent, the appearance of erythematous eruptions, and, in particular, of urticaria in the gouty and rheumatic, hence they should be eaten with moderation.

	Meat.	Soft part.	Eggs.
Water . .	76.618	84.318	62.983
Azotized matters	19.170	12.140	21.892
Fatty matters .	1.170	1.144	8.234
Salts (by incineration) . .	1.823	1.749	1.998
Non-azotized matter and loss .	1.219	0.354	4.893

From this analysis we see the great nutritive value of the eggs of the lobster. This remark is also applicable to the eggs of fishes as well, and the spawn of certain fishes, as that of the sturgeon, constitutes a very nutritious aliment, which goes by the name of *caviar*.

I shall finish this lecture by a brief allusion to the edible reptiles, which consist of the tortoise and the frog.

Despite the sneers of the English, who call us a nation of frog-eaters, it is a fact that we make but a very moderate usage of the *rana esculenta*, which really hardly deserves its epithet of *esculent*, for its nutritive value is very feeble, and inferior to that of our lighter meats. As for the turtle, the consumption of this reptile is also very limited; at the same time, Payen has shown that the flesh of the turtle contains in every 100 parts, 16.25 of nitrogenous matters representing 2.5 of nitrogen.

I have now concluded the study of the azotized substances which serve for the food of man, and whose sum constitutes the azotized regimen. The advantages and disadvantages of this regimen will be considered when I come to speak of alimentary rations. In the next lecture I shall take up the subject of vegetable diet and of fatty foods.

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ORIGINAL ARTICLES.

CASES OF MILK-POISONING, WITH REMARKS ON TYROTOXICON.

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INQUIRIES concerning the cases of illness at Long Branch due to noxious milk have been so very numerous and solicitous, and the interest manifested in the subject has been so great, that we feel warranted in publishing the following account of the investigation carried out to ascertain the cause of the trouble.

It is seldom that the investigator has the opportunity to trace to its source the milk or other food that has caused sickness, but we have, in these cases, been very fortunate in being able to follow every step in the management of the milk, from the farm to the consumer. In similar cases of poisoning by cheese and ice cream which have been investigated by Vaughan and others, although chemical analysis has revealed the probable cause and the toxic substance has been isolated, some link in the chain of evidence has been wanting. But the history we are now to relate seems unique, because every portion of the evidence is before us and we are able to demonstrate what the injurious material really is, besides offering other proof as to the possible cause of the formation of this substance.

On August 7th twenty-four persons at one of the hotels at Long Branch were taken ill soon after supper. At another hotel, on the same evening, nineteen persons were seized with the same form of sickness. From one to four hours elapsed between the meal and the first symptoms. The symptoms noticed were those of gastro-intestinal irritation, similar to poisoning by any irritating material—that is, nausea, vomiting, cramps, and collapse; a few had diarrhœa. Dryness of the throat and a burning sensation in the œsophagus were prominent symptoms.

While the cause of the sickness was being sought for, and one week after the first series of cases, thirty persons at another hotel were taken ill with precisely the same symptoms as noticed in the first outbreak.

Drs. S. H. Hunt and Williams, of Long Branch, attended all the patients on both occasions. Dr. Hunt kindly furnishes the following account of the cases:

"The symptoms were very similar to those of any case of gastro-intestinal irritation. I was impressed with this fact although there was an unusual absence of diarrhœa in many of the cases. A few would have several active movements and no vomiting, the poison or cause being thus immediately removed; while in many cases it produced violent emesis which was followed by collapse and failure of the heart's action. Both occurred in a few instances, but the rule was the persistent and obstinate nausea and vomiting, with a tendency to exhaustion and collapse as seen in cholera. The convalescence and recovery were prompt, and in a few hours all were in their usual health, and no untoward symptoms followed the attack." The remedies employed were those usually indicated in such cases, such as antacids, stimulants, and in a few instances small hypodermatic injections of morphia were administered.

When the news of the outbreak was published one of us immediately set to work, under the authority of the State Board of Health, to ascertain the cause of the illness. The course of the investigation was about as follows:

The character of the illness indicated, of course, that some article of food was the cause, and the first part of our task was to single out the one substance that seemed at fault. The cooking utensils were also suspected, because unclean copper vessels have often caused irritant poisoning. Articles of food, such as lobsters, crabs, blue fish, and Spanish mackerel, all of which at times, and with some persons very susceptible to gastric irritation, have produced toxic symptoms, were looked for, but it was found that none of these had been eaten at the time of the outbreak. The cooking vessels were examined, and all were found clean and bright and no evidence of corrosion was presented.

Further inquiry revealed the fact that all who had been taken ill had used milk in greater or less quantities, and that persons who had not partaken of milk escaped entirely; corroborative of this it was ascertained that those who had used milk to the exclusion of all other food were violently ill. This was prominently noticed in the cases of infants fed from the bottle when nothing but uncooked milk was used. In one case an adult drank about a quart of the milk, and was almost immediately seized with violent vomiting followed by diarrhœa, and this by collapse. Suffice it to say that we were able to eliminate all other articles of food and to decide that the milk was the sole cause of the outbreak.

Having been able to determine this, the next step was to discover why that article should, in these cases, cause so serious a form of sickness.

The probable causes which we were to investigate were outlined as follows: (1) Some chemical substance such as borax, boric acid, salicylic acid, sodium bicarbonate, sodium sulphate, added to preserve the milk or to correct acidity. (2) The use of polluted

water as an adulterant. (3) Some poisonous material accidentally present in the milk. (4) The use of milk from diseased cattle. (5) Improper feeding of the cattle. (6) The improper care of the milk. (7) The development in the milk of some ferment or ptomaine, such as tyrotoxicon.

At the time of the first outbreak we were unable, unfortunately, to obtain any of the noxious mik, as that unconsumed had been destroyed, but at the second outbreak a liberal quantity was procured.

It was soon ascertained that one dealer had supplied all the milk used at the three hotels where the cases of sickness had occurred; his name and address having been obtained, the next step in the investigation was to inspect all the farms, and the cattle thereon, from which the milk was taken. We also learned that two deliveries at the hotels were made daily, one in the morning and one in the evening; that the milk supplied at night was the sole cause of sickness, and that the milk from but one of the farms was at fault. The cows on this farm were found to be in good health, and, besides being at pasture, were well fed with bran, middlings, and corn-meal.

So far, we had been able to eliminate as causes diseased cattle and improper feeding, and we were then compelled to consider the other possible sources of the toxic material.

While the inspection of the farms was being made, the analysis of the milk was in progress. The results of this showed that no chemical substance had been added to the milk, that it was of average composition, that no polluted water had been used as a diluent, and that no poisonous metals were present. This result left us nothing to consider but two probable causes: improper care of the milk, and the presence of a ferment.

As to the former, we soon learned much. The cows were milked at the unusual and abnormal hours of midnight and noon, and the noon's milking—that which alone was followed by illness—was placed, while hot, in the cans and then, without any attempt at cooling, carted eight miles during the warmest part of the day in a very hot month.

This practice seemed to us sufficient to make the milk unpalatable, if not injurious, for it is well known that when fresh milk is closed up in a tight vessel and then deposited in a warm place, a very disagreeable odor and taste are developed. Old dairymen speak of the "animal heat" as an entity, the removal of which is necessary in order that the milk shall keep well and have a pleasant taste. While we do not give this thing a name, we are fully convinced that milk should be thoroughly "cured" by proper chilling and aëration, before it is transported any distance or sold for consumption in towns or cities.

This opinion is based on a study of the methods prevalent among experienced dairymen, who ship large quantities of milk to our great cities. The usual practice is to allow the milk to stand in open vessels, surrounded by ice or cold water, for from eight to twelve hours before transportation, and when placed on the cars it has a temperature of from 50° to 60°, and is delivered to the consumers in a perfectly sweet condition. The city of New York receives about 200,000 gallons each day from the surrounding country, and much of it brought in by the railroads has been on the cars for a time varying from six to twelve hours, yet we seldom hear of any of this milk undergoing the peculiar form of fermentation set up in the Long Branch milk. We may account for this by assuming that the proper care of the milk after it was taken from the cow, and the low temperature at which it was kept, have prevented the formation of any ferment; this opinion seems to be endorsed by all dairymen and managers of large creameries with whom we have consulted. They all agree in stating that milk maintained at a low temperature can be kept sweet and in good condition for many days.

We have dwelt on this branch of our topic somewhat extensively, because we are fully persuaded that the improper care of the milk had much to do with the illness it produced.

The results of our inquiry having revealed so much, we next attempted to isolate some substance from the poisonous milk, in order that the proof might be more evident. A quantity of the milk that had caused sickness in the second outbreak was allowed to coagulate, was then thrown on a coarse filter, and the filtrate collected. This latter was highly acid, and was made slightly alkaline by the addition of potassium hydrate. This alkaline filtrate was now agitated with an equal volume of pure, dry ether, and allowed to stand for several hours, when the ethereal layer was drawn off by means of a pipette. Fresh ether was added to the residuum, then agitated, and, when separated, was drawn off and added to the first ethereal extract. This was now allowed to evaporate spontaneously, and the residue, which seemed to contain a small amount of fat, was treated with distilled water and filtered, the filtrate treated with ether, the ethereal solution drawn off and allowed to evaporate, when we obtained a mass of needle-shaped crystals. This crystalline substance gave a blue color with potassium ferricyanide and ferric chloride, and reduced iodic acid. The crystals, when placed on the tongue, gave a burning sensation. A portion of the crystals was mixed with milk and fed to a cat, when, in the course of half an hour, the animal was seized with retching and vomiting, and was soon in a condition of collapse, from which it recovered in a few hours.

From these experiments with this material, we were able to identify it as *tyrotoxicon*, a substance discovered and described by Prof. Victor C. Vaughan, of the University of Michigan. Although much has been published during the past two months concerning this substance, it will not be unprofitable, in this connection, to review the statements of the chemist who first described it.

In the year 1883 about three hundred persons were taken violently ill after eating cheese, and Prof. Vaughan was requested by the Michigan State Board of Health to ascertain the cause. While engaged with this work, he discovered the substance which answered to the tests mentioned above, and which he called "tyrotoxicon" (cheese poison).[1]

[1] Ein Ptomain aus giftegem Käse. Zeitschrift für Physiologische Chemie, Band x. Heft 2, 1886.

During June, of this year, Prof. Vaughan was able to obtain this substance from ice-cream that had sickened some eighteen persons.[1]

We are now able, for the first time, to demonstrate this new substance in poisonous milk, thus endorsing the views of Vaughan, who stated in his report that, doubtless, it would be discovered in cases in which milk had caused sickness.

As to the chemical character of tyrotoxicon, we have little to say, for a sufficient amount for an ultimate analysis was not obtained by us. Vaughan says: "The circumstances under which tyrotoxicon develops require further study. As has been shown, it may develop in normal milk, kept in a clean bottle for three months; but it is evident that in some instances it appears much earlier." (In our cases it appeared in five hours.) "The production of this ptomaine is, in all probability, due either directly or indirectly to the growth of some micro-organism."

From a close analysis of the facts in the cases recorded in this article, we are of the opinion that the substance is allied, chemically, to butyric acid; that it is formed in the milk by fermentation; and that its formation may be prevented by keeping the milk at a low temperature; or by properly cooling the milk soon after it is drawn from the cow. It seems, also, important that the so-called "animal heat" be allowed to escape. Boiling may dissipate the poison from milk that contains it; this opinion is based on the fact that tyrotoxicon is changed and driven off at a temperature of 180° F.

Conclusions.—We are justified in assuming, after weighing well all the facts ascertained in the investigation, that the sickness at Long Branch was caused by poisonous milk, and that the toxic material was tyrotoxicon.

The production of this substance was no doubt due to the improper management of the milk—that is, too long a time was allowed to elapse between the milking and the cooling of the milk; the latter not being attended to until the milk was delivered to the hotel; whereas, if the milk had been cooled immediately after it was drawn from the cows, fermentation would not have ensued, and the resulting material, tyrotoxicon, would not have been produced.

[1] Report of Proceedings of Michigan Board of Health, July 12, 1886. THE MEDICAL NEWS, July 25, 1885, p. 111.

ON THE TREATMENT OF PAINLESS FACIAL SPASM.[2]

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THE treatment of tic non-douleureux is very unsatisfactory. Erb[3] remarks that it is one of the most thankless problems of medical practice, and all authorities agree that therapeutic means are of but little use in the treatment of this most annoying condition. M. Francois, in an exhaustive article on "Facial Tic," in the *Edinborough Medical Journal*, vol. lxxv., speaks of the incurability of the disease. Even if a remedy is found which does check or control the spasms, it is more than probable that a relapse will occur at an early day.

A number of cases have been reported by different writers as cured, but what has helped one patient will be found utterly ineffectual with the next. Hammond speaks of having cured a case of facial spasm with the bromide of zinc and galvanism. Remak[1] has cured cases by galvanism applied to "pressure points" on the spine. But Althaus says that, in his experience, galvanism is without value, except in recent cases.

Chisolm[2] describes a case treated at Port Royal, in 1800, with "oxygenated muriate of potash," which was cured. After four months the patient had a relapse, but was again relieved by the same drug after other means had failed. He does not say how long the patient was under observation.

Various drugs have been spoken of favorably in the treatment of this disease, but I can find no reports showing that there are any cases known to have been cured for a length of time by any remedy. From this want of success with medicines, it has become necessary to resort to surgical means for aid. Erb states that neurotomy of sensory nerves is often followed by good results in mimetic spasm, even when no reflex irritation proceeds from these nerves, and quotes Romberg and Gräfe in this connection. Althaus also speaks of cases of facial spasm being usually cured by section of branches of the fifth. I have known blepharospasm to be cured for the time by section of the supraorbital nerve; but I do not know how long the relief lasted. In the case which I shall relate, resection of the infraorbital nerve was not productive of any good result.

Excision of branches of the fifth nerve for the relief of tic non-douleureux seems to have been practised for many years. Chisolm, in the paper quoted above, says "Is not this the disease described by Dr. Haighton (*Medical Records and Researches*, 1798), cured by the division of the fifth pair of nerves?" I cannot find, however, that it has been successful, except in cases of limited spasm, as, for instance, blepharospasm. In cases reported by Putnam and Godlee, the supraorbital had been fruitlessly divided prior to stretching of the seventh. In each of these, however, the relief from the stretching lasted but a few months.

Section of the facial nerve has been performed in some cases, but, of course, this is followed by complete paralysis of all the muscles supplied, which is permanent. In one case which has been reported, the twitching of the facial muscles did not cease after division of the nerve, although the paralysis was absolute. Dieffenbach[3] divided subcutaneously most of the muscles affected with spasm, in an inveterate case, and obtained a very favorable result.

The possibility of stretching the facial nerve naturally suggested itself after other nerves had been stretched with good results, and the operation was first done by Baum, for the relief of facial spasm, in 1878.[4] This case was very successful. The patient

[2] Read before the American Neurological Association, July 23, 1886.

[3] Ziemssen's Cyclopædia, vol. xi. p. 312.

[1] Erb, op. cit.

[2] Annals of Medicine, Edinborough, 1801, vol. v. p. 402.

[3] Erb, op. cit.

[4] Keen, Annals of Surgery, vol. iv.

was cured for eight or nine months, and then had a slight relapse, but after two years she was comparatively free from the disorder. There have been, since Baum's operation, twenty others, the last of which being the following case:

Mrs. A. S., æt. forty-nine years, was sent to my clinic at the Orthopædic Hospital and Infirmary for Nervous Diseases, by her physician, Dr. Bartleson, on July 23, 1883. The following history was obtained. She is a native of England, is married, and has had ten children, nine of whom are living. Her mother died of dropsy, at the age of about fifty years, and her father died of inflammation of the stomach. When a child of six years, she had an attack of nervous trouble, which was in all probability chorea. She remembers but little about it, except that it lasted several months, and that she was scarcely able to walk. She recovered entirely, after coming to this country at about the age of seven. Her catamenia were established at sixteen years, and at about the the same time she had another attack of chorea. This affected the right side, and was of several months' duration. After getting well of this attack, she had excellent health, with the exception of more or less frequent attacks of migraine. She has lived in a malarious region, and has had intermittent fever several times in the past sixteen years. The menstrual flow has been regular, but she has had severe pain at each period. Her last child was born in 1880. The labor was easy and rapid, not lasting much more than an hour. Since this confinement the catamenia have become more frequent, and the flow has been profuse, at times excessive.

When her baby was about six months old she noticed one day slight quivering of the right under eyelid. In a day or two this became constant and more marked, and soon extended to other muscles of the right side of the face. In two or three weeks after the tremor began, she first had pain in the right parietal region. It was dull and continuous; but she had no pain in the brow or in the face. In two or three months she thinks that all of the muscles of the right side of the face, and some of the neck muscles were affected with the spasms. It became steadily more severe, and the pain in the head increased in intensity. At times she has been so worn out by the continual spasms of the face, that she was confined to bed.

About the time that the pain in the head began, she had pain in the right biceps. This lasted for about two years and made the arm weak and helpless.

Her general health remained fairly good, although she lost flesh and color.

On first coming under observation it was noticed that attempts at speaking brought on spasmodic twitching of all the muscles of the right side of the face. The mouth was drawn strongly to the right, the eye was closed, and the fibres of the platysma myoides twitched. The spasm would last from thirty seconds to about three minutes, and she said that it was not accompanied with pain. Pressure over the supra- or infra-orbital nerve did not check or keep off spasms, nor did pressure over the facial in front of the ear affect them. The sensation was not impaired. Hearing was good. The eye ground did not present any unusual feature. Emotions or excitement increased the twitching, and eating or talking would almost certainly bring on an attack. Season of the year seemed to exert no influence on the severity of the disease. She had had all of the teeth on the right side of the mouth extracted, but without relief.

I used a large number of therapeutic means with but little or no benefit. Conium when pushed to drachm doses of the fluid extract did control the twitching to some extent, but the effect seemed soon to wear out. Gelsemium was given and so was Cannabis indica. Quinine in large doses relieved the pain in the head somewhat, but did not help the spasms. Galvanism was used faithfully and intelligently by Dr. G. Betton Massey, the electrician to the hospital, but did not show any good effect. Blisters to the nucha, as advised by Anstie in epileptiform tic, were used without avail. Other drugs, as iodide and bromide of potassium, eserine, and nitroglycerine, were given with no perceptible result. Finally, at a consultation of the medical staff of the hospital, it was decided that stretching of the facial nerve would afford the best prospect of relief; but at the desire of our surgical colleagues it was decided to try first the effect of division of the infraorbital nerve. Accordingly, in June, 1884, Dr. T. G. Morton resected about half an inch of the right infraorbital. The result of this operation was diminution of the twitching and spasms for a few days, and the pain in the head became less; but in two or three weeks they were as severe as ever.

Another course of drugs and electricity was now pursued, but the patient's condition became worse. In the summer of 1885 she began to have pain in the back of the right thigh, in the course of the sciatic nerve, and in the calf of the leg. The muscles of the leg felt to the patient as if they were drawing and twitching, and there were often severe cramps of the calf muscles. All of the symptoms were intensified at the menstrual periods, which occurred every two or three weeks with profuse flow.

In March, 1886, I had a consultation with Dr. W. W. Keen, as to the advisability of stretching the facial nerve in Mrs. S.'s case. He agreed with me that it was desirable to perform the operation, and admitted the patient to the Woman's Hospital, where the nerve was stretched, on April 2, 1886. Dr. Keen reported the case at the meeting of the American Surgical Association, in May, 1886, and his paper is published in *The Annals of Surgery* for July. The following is his account of the operation:

"Began etherizing at one o'clock, Dr. Sinkler present and assisting. At 1.10 an angular incision was made, two and one-half inches long. The centre of the incision was at the apex of the mastoid process, passing upward behind the ear, and downward in a line parallel with the border of the sterno-cleido-mastoid muscle. Ligated the posterior auricular artery; the parotid was dissected and pushed forward until the prevertebral muscles and their aponeuroses were reached. A very weak current of electricity was then applied by a wet sponge to the cheek, and fine wire to various points in the wound, until the nerve was found. Immediately a spasm of the facial muscle followed the application.

The nerve was then laid bare. A hook was next passed under it, and the nerve stretched several times from the face outward, pulling the head to the right side. When the nerve was stretched, marked contraction of the facial muscles was seen. The force used was estimated at between four and five pounds. No more force was used, because a few fibres were felt giving way when an attempt was made to lift the head. Horsehair drainage was used, and four silver sutures were introduced. Complete paralysis of the facial muscle was noted after the stretching, and before she had recovered from the ether. Upon recovering consciousness, the patient remarked the absence of pain in the head. Before the operation, pulse 90, temperature 98.8°. After the operation, pulse 82, temperature 98.6°.

"A carbolized gauze dressing was applied, and the operation was completed at 1.50 P.M. At 6 P.M. complained of severe pain in the ear, which soon passed away. After operation there was complete paralysis of the facial muscles. The right eyelid did not close of itself.

"*April 3.* First day after operation, 6 A.M., pulse 77, temperature 99¼°. Paralysis of facial muscles not so marked as immediately after the operation. No pain in the head, but complaining of soreness in the leg. Wound was dressed at 2.30 P.M. Slight oozing was found on the dressing.

"*4th.* Second day, 6 A.M., pulse 85, temp. 98.6°. Took more nourishment. No pain in the ear. Leg and side still painful.

"*5th.* Third day, 6 A.M., pulse 85, temp. 98.7°. Eyelid nearly closed and facial muscles seem a little less relaxed than before. There has been no twitching of the facial muscles, platysma, or of the leg since the operation. Sat up for an hour.

"*6th.* Fourth day, out of bed. All stitches removed, and the horsehair drainage; a few drops of sanious discharge followed."

Dr. G. Betton Massey made an electrical examination on the tenth day after the operation. He found farado-contractility greatly weakened at this time, and on the seventeenth day it was totally abolished. The galvanic responses are tabulated below. Dr. Massey used great care in this examination, and eliminated all errors from changes in resistance by the use of a milliampère meter.

"It will be noted by a reference to the table, that the frontalis showed the serial changes indicative of the reaction of degeneration in a slight degree on the seventeenth day. This remained the same on the twenty-fourth, when a slight modal change, consisting of a slow, wave-like contraction, instead of a sharp, quick one, was noted. The orbicularis palpebrarum showed quantitative diminution of excitability on the tenth day, and serial changes on the seventeenth. The levator labii superioris showed slight serial change on the tenth day, which has increased since, amounting, on the twenty-fourth day, to more than a complete reversal of the normal figures. This was also true of the zygomaticus major, orbicularis oris, and levator menti, in all of which increasing serial change has been found, together with great modal alteration of contraction. The lower muscles of the face show greater change than the upper."

In the following table it will be found that the figures of the normal formula of each muscle are given. These were obtained by making an examination of the sound side of the face.

	Minimum contraction at		Remarks.
	Kathodic closure.	Anodic closure.	
Frontalis:			
Normal	1	1½	
10th day	1	1½	Slight modal change.
17th day	1½	1	
24th day	1½	1	
Orbicularis palbebrarum:			
Normal	½	1	
10th day	2½	3	Slight modal change.
17th day	2	1	
24th day	2½	1½	
Levator labii superioris:			
Normal	2½	3	
10th day	2½	2½	Modal change.
17th day	4	2	
24th day	3	1½	
Zygomaticus major:			
Normal	2½	3	
10th day	2½	3	
17th day	5	3½	Modal change.
24th day	2½	1½	Great modal change.
Orbicularis oris:			
Normal	2½	3	
10th day	2½	3	Slight modal change.
17th day	1½	1½	Great " "
24th day	1½	1½	" " "
Levator menti:			
Normal	2½	3	
10th day	2½	3	
17th day	1	1½	Great modal change,
24th day	1	½	" " "

Dr. Massey made a final electrical examination on the one hundred and ninth day after the operation, with the following results:

	Minimum contraction at	
	Kathodic closure.	Anodic closure.
Frontalis	1	1½
Orbicularis palpebrarum	½	1
Levator labii superioris	1½	2½
Zygomatics	2½	3
Orbicularis oris	1½	2
Levator menti	½	1

Showing a return to normal in several muscles. There was some response to the faradic current at this examination.

I examined Mrs. S. four weeks after the operation. There was then complete paralysis of all of the muscles supplied by the right seventh nerve. There was no twitching and no pain, and there had been none since the stretching of the nerve. Sensation was not impaired except on the posterior edge of the right ear. This was probably from the division of a cutaneous nerve by the incision made in the operation. The patient was in excellent spirits, and said she felt perfectly well. She was free from headache, and had no pain or twitching in the leg.

On June 18, ten weeks after the operation, the paralysis was beginning to disappear. The eye could be partially closed, and there was some power to draw the angle of the mouth to the right. There

was hyperæsthesia on the posterior edge of the ear, where there had been previously loss of sensation.

On July 19, fifteen weeks after the nerve stretching, there was scarcely a trace of the paralysis left. Mrs. S. reported that at the time of her last menstrual period she had a severe headache and felt slight quivering of the right lower lid. This lasted but a short time, and she has not experienced it since. She has had no pain in the head, and has had no return of spasms or cramps in the right leg, but still has some pain in the right thigh and calf.

Dr. de Schweinitz kindly examined the eyes and reported:

R. E. V. $\frac{15}{LXXX}$ with a + 3° $\frac{15}{XXV}$.

L. E. V. $\frac{15}{L}$ with a + 1.75^{s} $\frac{15}{XL}$.

Excursion of eyeballs good in all directions. No muscular paralysis. Insufficiency of the interni 7°. Pupils react normally. *Ophthalmoscope, R. E.:* Small nerve, the lower edge slightly veiled by striated retina. Nerve color a little gray. Choroid extensively disturbed, and its pigment epithelium absorbed.

L. E.: Nerve larger. Similar striation of retina. Choroid more disturbed than in R. E. Pigment epithelium absorbed; and down and in from the disk one mass of choroidal pigment. Lymph sheaths along vessels marked. Hypermetropia 1.75°.

A uterine examination revealed a deep bilateral laceration of the neck of the womb. The lips were not everted or ulcerated. The depth of the uterus was three inches. The organ was in normal position and was not sensitive to the touch.

Dr. Keen has tabulated with great care all of the cases in which stretching of the facial nerve has been done. The tables which he has made are much more accurate and full than any which have heretofore been published. From these it will be found that there have been twenty-one cases of tic convulsif in which the facial nerve has been stretched. Of these twenty-one, complete relief from the spasmodic contractions has followed the operation in seven cases. In two of these the patients had been under observation two to three months, and in three the patients had been seen at periods varying from two to five years after the operation. One case was not seen after three days, and in my own case almost four months have passed since the operation, and there has been no return of the trouble except the trifling twitching of the lower lid referred to above.

Of fourteen cases, in three complete relief lasted only one week, and after that time in one the improvement continued for two years; but in the other two the benefit did not continue after the first week.

In five cases complete relief lasted from three weeks to four months. Of these, four continued better and one relapsed to the same condition as before the operation.

Finally, in six cases there was absolute relief for from four months to one year. Of these, improvement continued in three, and in the remainder the spasms returned with their former severity.

Of the whole number of cases there were but six in which it was reported that the patients relapsed to a condition as bad as that prior to the operation. There was not one case in which there had not been complete relief for a longer or shorter time. The shortest time that relief lasted was one week.

It is true that none of these cases was under observation long enough to make a thorough test of the value of the operation; and it is also true that a large number of the patients relapsed to a greater or less extent; but we know of no other means which has given relief in so large a proportion of cases. Of the half-dozen cases of tic non-douleureux which I find in the books at the Infirmary for Nervous Diseases, in not one was there absolute cessation of the spasms from any form of treatment used, and, as I have before shown, nearly all of the writers on the subject are unanimous in the opinion that treatment is without avail. It is for this reason that I feel that stretching the facial nerve is to be recommended for tic-convulsif. When we consider the small amount of risk and suffering in the operation, and the large degree of relief afforded by it, we would certainly be derelict in our duty to our patient in not performing it when other means have failed.

When I saw Mrs. S., four weeks after the operation, the right side of the face was entirely palsied. She could not close the right eye, and the corner of the mouth drooped. She assured me that, notwithstanding this condition, the relief from the twitching and pain was so great, that she would willingly remain as she was rather than have a return of the spasms.

I am inclined to believe that in this case the disease was peripheral in origin, from the fact of the two attacks of chorea which she had had early in life and from the influence of the menstrual periods on the convulsive twitchings.

NOTE.—I saw Mrs. S. on August 16th, four and a half months after the operation. The facial paralysis was entirely relieved, and there was not a symptom of the twitching.

A PRIMARY OPERATION FOR TORN PERINEUM AFTER EMMETT'S METHOD.

BY FRANCES HATCHETT, M.D.,
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THE patient, a primipara, was confined July 26, 1886. Perineum ruptured, the laceration, externally, extending to the sphincter ani muscle; internally, the tear extended along both sides of the posterior column of the vagina to the extent of an inch and a half. The stitches were introduced on each side of the column according to Emmett's directions, and the rest of the tear was united by three deep stitches knotted externally.

On the twelfth day the stitches were removed, union perfect. There was no deformity of the parts whatever. The case is interesting because the primary tear corresponded to the denudation made by Emmett, as represented in his diagram, in performing the secondary operation.

August 18, 1886.

THE REACTION AGAINST THE BACILLUS TUBERCULOSIS IN GERMANY.

BY THOS. J. MAYS, M.D.,
OF PHILADELPHIA.

IT is very exceptional that a new idea finds such general acceptance as that which greeted the discovery of the tubercle bacillus by Koch in 1882. It was not only new, but it threatened to revolutionize all existing notions of the causation and treatment of pulmonary consumption. It placed this disease in the contagious list, and the victims of the former were to be regarded as objects of suspicion, rather than of pity. The idea took root at once in Germany, and before very long had disseminated itself throughout the civilized world. Everybody was infected by it, so that Prof. Virchow recently said that it "not only swayed the ideas, but also the dreams of many old and of nearly all young physicians." It is very difficult to account for this phenomenal course of things, unless it was partly due to a feeling of weakness on the part of the members of the profession to cope with the destructiveness of the tuberculous malady; and hence they were ready to welcome anything which contained so much apparent "promise and potency of" renewed "life."

It must be admitted that the parasitic doctrine of the cause of tuberculosis is very beautiful and simple, but it unfortunately collides with too many well-established facts apparent to every practical observer. If it were true that consumption is a contagious disease, then it should conform with the laws which are known to govern contagious disease. This is not the case, for observation has settled beyond cavil, that it is not those who are most exposed to the disease who are most liable to it, which is in direct opposition to the behavior of contagious disease. Prof. Lichtheim, in the transactions of the second medical congress, which met in Wiesbaden in 1883, says that "it must be admitted that there are many facts which contradict the contagious nature of pulmonary phthisis. As a rule, intercourse with phthisical people is not attended with danger. We hospital physicians spend much time among such people. We have such confidence in the innocuousness of the disease, that we do not hesitate to mix healthy persons with them in institutions devoted to its treatment, and we must confess that this procedure is practically unattended by any unfavorable results." He stated that the mortality of the attendants in the principal hospitals for consumption was surprisingly low; and that he could, from investigation, confirm the belief that there is no relation between the increase of the number of phthisical patients at a health resort, and the number of deaths from consumption occurring among the native inhabitants. This ground is also substantiated by the statistics of the Brompton Hospital for Consumption in London, as collected by Drs. William and Humphreys. This is a large institution, and had been in operation for thirty-six years up to the year 1883, yet not a single clearly authenticated case of pulmonary consumption among the many attachés of the hospital occurred within its walls. The statistics of the Brompton Hospital in regard to the non-contagiousness of phthisis are probably not more striking than those which relate to the influence of the Consumption Hospital of Görbersdorf, Germany, on the death-rate from phthisis among the inhabitants of that town. Dr. Brehmer, who has been in charge of that institution for twenty years, says[1] that the mortality among the native residents has diminished fifty per cent. during that time, and that, too, in the face of the constant exposure to the expectoration and exhalation of the many phthisical patients residing there.

Virchow, in his famous address "Der Kampf der Zellen und Bacillen," says:

"After Dr. Koch had found the tubercle bacillus many *affected to believe* that all the arduous labors of previous observers were superfluous. Unity of the bacillus—therefore unity of phthisis. Pulmonary phthisis, however, remained as before: A significant process commencing in many ways,—sometimes in the mucous membranes of the air-passages, sometimes on the inner surfaces of the alveoli, and sometimes in the parenchyma of the lung—and which may at one time engender simple inflammatory products, and at another time specific tubercles, and he who wishes to form an intelligent conception of it must do more than familiarize himself with the staining of bacilli."

In the *Correspondenzblatt für Schweizer Aerzte*, Nos. 10, 11, and 12 for 1886, appears a most interesting and instructive paper entitled "Eine Statistiche Studie als Beiträg zur Aetiologie der Lungenschwindsucht," by Dr. H. Schnyder. It is based on an observation of 3461 cases of pulmonary consumption under his professional care whilst resident physician at the health resort of Weissenburg, in Germany. He classifies them into city and country patients—those coming from cities numbered 2549, and those coming from agricultural districts numbered 912. Of the whole number there were 2194 males, and 1267 females; or 63.4 and 36.6 per cent. respectively. The patients from the cities numbered 1659 males and 890 females; or, 66.87 and 34.13 per cent. respectively; while those from the country numbered 537 males and 377 females; or, 58.66 and 41.34 per cent. respectively—showing that the male sex is absolutely and relatively more liable to the disease, both in city and in the country, than the opposite sex, while the reverse is true in regard to females, for 7.21 per cent. more of this sex suffer from the disease in the country than in the city. This result is still more surprising when we reflect that on the whole there are more females than males in the city, and more males than females in the country.

In order to confirm or refute this last observation, Dr. Schnyder compares the phthisical death-rates of the cities of Geneva, Basle, and Zurich, with those occurring in the cantons of Wallis, Waadt (without Lausanne and Vivis), Freiburg, and Lucerne (without the city), during the eight years from 1877 to 1884, and he obtained the following confirmatory results: In the above-named cities there were 2583 males

[1] Die Aetiologie der Chronischen Lungenschwindsucht, p. 492. Von Dr. Hermann Brehmer, sr. Berlin, 1885.

and 2142 females; respectively 54.7 and 45.3 per cent.—and in the above-named cantons there were 2822 males, and 2549 females—respectively 52.5 and 47.5 per cent.—who were suffering from pulmonary phthisis.

Now it would be perverting reason to contend that there are more bacilli in the relatively purer country air; hence, it is very evident that there exist producing causes of phthisis in the country at least in which the bacilli do not share. The author attributes this greater liability of the female country population to the disease, to the fact they are more exposed to all kinds of weather and temperature, and perform more laborious work than their city sisters.

In this connection it is very interesting to note in the second volume of *Mittheilungen aus dem Kaiserlichen Gesundheitsamt* that the phthisis mortality among females in the city and country is greatly influenced by age. It appears here that females in the city are more liable to phthisis in their youth, and those in the country when they are past middle life. This is believed to be due to the faster life among city people, and consequently a more rapid exhaustion of strength than is the case in the country.

Dr. Schnyder's cases of hereditary phthisis among his city patients are 62.08 and 73.71 per cent., males and females respectively; and among his country patients 61.31 and 72.15 per cent., males and females respectively. Therefore, about two-thirds of all his cases were traced to heredity as a cause. This is somewhat lower than the rates of Homann, who gives 70 per cent.; as well as those of Rufz, who gives 87 per cent., but higher than those given by Williams based on 500 cases, than those of Cotton based on 1000 cases, and than those of Albert Müller based on 988 cases—which were 45, 36.7, and 28.6 per cent. respectively. The higher percentage of heredity in Dr. Schnyder's cases may be due to his tracing the family histories to grandparents, uncles, and aunts. His cases of acquired phthisis in cities numbered 37.92 per cent. males, and 26.92 per cent. females, and those in the country numbered 36.69 per cent. males, and 27.85 per cent. females.

The question of the infectiousness of phthisis between husband and wife is probably the most instructive portion of this most interesting investigation, and is very conclusive in regard to the non-etiology of the tubercle bacillus. The table records 844 cases of phthisis occurring among married people. In 445 of these cases the husband only was affected, in 367 cases the wife only, and in 32 cases, or about 3 per cent., both husband and wife were affected. In 812 of these cases the question of contagion is entirely excluded, while this cannot be stated with equal certainty of the 32 cases. Yet if we reflect that more people suffer and die from phthisis than from smallpox, which is unquestionably contagious, that only a very small fraction of those who are exposed to the former disease take it, and that all the unprotected who are exposed to the latter disease invariably fall a prey to it, it does not argue much in favor of the theory that phthisis is conveyed from one person to another through contagion.

To take refuge in the theory that "a proper soil" in, or "a disposition" of the body is necessary to the contagiousness of the tubercle bacillus, is merely shifting the question from a higher to a lower plane. What matters it, whether it is the "disposition" or the "proper soil," or anything else in the body on which the germ is presumed to act? If it fails to act when it comes in contact with any of these elements, it loses an opportunity which is never unimproved by a genuine contagious disease. The crucial question concerning the contagiousness of phthisis in these cases can therefore be stated in the following terms: If the "disposition" or "proper soil" existed in the 32 cases, why was it absent in the 812 cases?

Then again in connection with the "disposition" and "proper soil" theories, it may be stated that we have numerous instances where physicians who suffered from phthisis themselves, spent many years of hard labor among consumptive patients principally, and never experienced any injurious consequences. Dr. Schnyder is an example of this himself. He says that he has a chronic affection of his right apex, which has not given him any trouble during all the years he has been engaged and overworked among phthisical patients at Weissenburg. Surely in agreement with Dr. Schnyder, we can say that if anywhere, in such cases, there should be a nidus or "soil" to tempt the most fastidious bacilli to colonize.

But is it beyond doubt that even the 32 cases were clearly engendered through contagion? We think not, for Dr. Schnyder says that it is a notorious fact, that in spite of all entreaties and warnings young people are often wedded while suffering from active lung disease. Dr. Schnyder relates four such cases in his own experience in which both the bride and bridegroom came to Weissenburg fresh from the matrimonial altar to be treated for phthisis, from which they both suffered. How many of the cases of phthisis which are supposed to be due to the communicability of the disease between husband and wife through contagion, are free from this element of uncertainty? To say nothing of those who are wedded while suffering from the acute forms of the disease, it cannot be denied that many young people of both sexes carry the hereditary taint of phthisis in their constitution, which only awakens from its slumber to assert its power when the many varied demands of family life begin to exhaust the vital resources.

It is evident that the standpoint from which we view the origin of phthisis is the fulcrum on which its successful treatment depends. If we believe that the bacillus is the cause of the disease, then the indications are toward the extermination of this parasite. If we believe, with Dr. Schnyder and many others, that it is merely a concomitant—a scavenger—of the disease, then we should trace the latter to other causes and modify our treatment accordingly. We hope that enough has been said to prove that the theory that the bacillus as a causative factor of pulmonary phthisis is encountering formidable opposition in the land of its birth, and trust that it will receive a most rigid investigation before it becomes the foundation-stone of pneumo-therapy in this country.

1716 CHESTNUT ST., PHILADELPHIA.

MEDICAL PROGRESS.

SIMPLIFICATION IN THE TECHNIQUE OF THE SÄNGER OPERATION.—At the recent meeting of the German Gynecological Association in Munich, DR. SÄNGER stated that, while the classic simplicity of the Cæsarean section was irretrievably a thing of the past, there was not necessarily any great complexity in the modern modified operation. His rules as to technique are as follows:

1. *Preparation.* No especial instruments are needed. The abdomen, vulva, and vagina are disinfected with sublimate solution,—the instruments with carbolic acid. Sponges may be substituted by large cotton wads dipped in the antiseptics just named or in chlorine water, or by napkins of sublimate gauze, etc. Two assistants are sufficient. In case of need the narcosis may be intrusted to a layman.

2. *The abdominal section* is in the linea alba. The application of hæmostatic clips and the introduction of provisional sutures may be dispensed with. Unless there has been death of the fœtus, rolling out of the unopened uterus is not advisable on account of the increased length of the incision involved and the likelihood of intestinal prolapse.

3. *The uterine section* is the anterior middle median incision, the lower uterine segment being avoided. The deep diagonal incision advised by Kehrer is not commended. In Cæsarean placenta prævia, the placenta may either be rapidly cut through or it may be loosened laterally. The author has followed the first method in one case and the second in two cases; in neither were there any resultant difficulties in suturing or in arrest of hemorrhage. The removal of the fœtus is best begun at the feet. If the head be retained the operator waits a short time and, if then necessary, enlarges the incision upward.

4. *Eventration of the uterus.* A napkin is spread over the intestines and the uterus enveloped in another. In the absence of elastic rubber tubing, an artificial bloodlessness of the uterus may be produced by manual compression or by torsion on its long axis. The placenta is separated by the fingers, and the patulency of the collum is ascertained. The uterine cavity is now disinfected with iodoform and is filled by sponges or strips of gauze until the introduction of the deep sutures.

5. *Sutures.* The deep sutures include the serous and muscular coats, but not the decidua. They are wide, eight to ten in number, and best made with flexible silver wire. The superficial stitches are taken with fine silk at the edges of the wound, and are from sixteen to thirty in number. In the absence of silver, which is highly commended, strong, aseptic silk may be employed.

6. *Washing out the uterus* is effected with sublimate, five parts to the thousand. Iodoform is applied to the line of suture, and the uterus is replaced as soon as all bleeding has ceased. There is no abdominal toilet except under especial indications, and *no drainage.* The abdominal wound is closed with silk knot sutures, iodoform and a thin adhesive plaster covers all. Ice bladders are placed upon the abdomen and several ergotin injections are given.

7. *The after-treatment* is to be as inactive as possible. Sänger maintains that while uterine suture is not strictly speaking easy, yet suturing the intestine is more difficult.—*Centralblatt f. Gynäkologie*, July 10, 1886.

TWO NEW TESTS FOR SUGAR.—The two reactions about to be described are common to cane-sugar, milk-sugar, glucose, levulose, and maltose, and to the carbohydrates and glucosides capable of yielding glucose by the action of sulphuric acid. They do not, however, produce any result with inosite, mannite, or quercite.

1. From one-half to two cubic centimetres of the suspected liquid are treated with two drops of a fifteen or twenty per cent. alcoholic solution of alpha-naphthol, and the mixture is shaken. A slight turbidity results from the precipitation of a little naphthol; sulphuric acid is then added in quantity equal to or even double the volume of the fluid, and the whole is briskly shaken. In the presence of sugar a deep violet color is developed. and dilution with water throws down a violet-blue precipitate, soluble in alcohol and ether with a yellow color, or in caustic potash with a golden-yellow color. In order that the reaction may occur as described, the test must be made exactly as stated.

This test will permit the detection of 0.00001 per cent. of sugar, and, with the exception of vanillin, anethol, methyl salicylate, and a few similar substances, gives no reaction when sugar is not present. These substances, however, either produce the color with sulphuric acid alone, or the precipitate formed when the violet solution is diluted with water, differs totally in character from that formed in saccharine liquids. The limit of sensibility of Fehling's test is 0.0008 per cent., and that of Trommer's test is 0.0025 per cent.

2. If, instead of the alpha-naphthol in the preceding test, an alcoholic solution of thymol of similar concentration be employed, the remaining manipulations being the same as before, a deep red varying from cinnabar to carmine is produced; dilution with water brings the color to carmine, and after a time there separates a flocculent precipitate, which dissolves with a pale yellow color in alcohol, ether, and caustic potash, but with a bright yellow in ammonia.

The delicacy of this reaction is about the same as of that with alpha-naphthol.

After many experiments had shown the trustworthiness of the results given by these tests, it was interesting, on account of their exceeding delicacy, to apply them to the solution of the disputed question whether normal human urine does or does not contain sugar. The results of the first attempts were so decided that the urine examined appeared to be diabetic. The urine of a number of perfectly healthy individuals was therefore examined, but with precisely the same results. The tests were made with alcoholic solutions of alpha-naphthol and thymol, exactly as has been described, and the extraordinary delicacy of the reactions can be better understood by the statement that normal urine diluted to from one hundred to three hundred times its volume with water still gives a recognizable reaction. When the urine is diluted to four hundred times its volume, the test shows no result.

In order that there might be no question as to sugar being the actual cause of the reaction, the following substances were examined and gave negative results

with both alpha-naphthol and thymol: urea, creatine, xanthine, uric acid, allantoine, hippuric acid, succinic acid, phenol, pyrocatechin, and indican.

These results fully confirm the opinion advanced by Brücke, and supported by many other observers, that normal urine constantly contains sugar.

These tests may be applied in two different ways in order to distinguish a normal from a diabetic urine.

1. A specimen of normal urine and of that to be tested are equally diluted with water to about one hundred times their volume; the same quantity of each is then tested just as has been described; if the suspected urine give a deeper violet than the normal specimen, it may be considered as diabetic.

2. The urine under examination is diluted with water to from four to six hundred times its volume. Even in this enormous dilution diabetic urine will sharply respond to the reactions of the tests described, while normal urine would give no result when diluted to four hundred times its volume.

After carefully studying the various tests for sugar in urine, F. Penzoldt came to the conclusion that the fermentation test is worthy of the greatest confidence in doubtful cases. All experiments, however, seem to show that the two new tests are decidedly more certain than the fermentation test. They leave but one thing to desire: they do not enable a distinction to be made between glucose and levulose, and although the sugar found in urine will in nearly all cases be glucose, yet various instances have occurred in which levulose was detected also.—*Phila. Med. Times*, Aug. 7, 1886.

COCAINE IN ANGINA PECTORIS.—PROF. LASCHKEWITCH has found good results from the internal administration of cocaine (in doses of one-half to one-third of a grain three or four times daily) in cases of angina. It does not cut short an attack, but diminishes its intensity, and after a few days' consecutive administration it gradually diminishes the force and duration of the seizures until they may wholly disappear (*Rev. de Méd.*, August, 1886). He details four cases; one was that of a man thirty-five years of age, the subject of aortic regurgitation and dilatation of the aorta. Anginal attacks occurred as frequently as eight times daily, and were of the characteristic kind. He was obliged to keep his bed, but the attacks also occurred during the night, preventing sleep. The disease had lasted two years, and had not been much benefited by oxygen inhalation. Half-grain doses of cocaine were prescribed, with the result that the attacks became less frequent and shorter, eventually disappearing. The patient died subsequently of an infectious disease. Another case was that of a man aged sixty-three, with mitral disease, aortic dilatation and general arterial sclerosis. Anginal attacks had occurred during the past six months on physical or mental exertion, and were only subdued by morphia. Here, again, cocaine acted admirably, the angina ceasing after three days' administration. In a third case the patient, aged fifty-eight, presented marked arterio-sclerosis; the angina disappeared after two days' administration of one-third of a grain four times a day. The fourth case, a man about forty years of age, was one of aortic regurgitation, with marked dilatation of the aorta; and the administration of cocaine speedily cut short the anginal attacks, which had become severe and frequent. Prof. Laschkewitch says that the remedy produces slowing of the pulse, which gains in volume; at the same time the quantity of urine is increased. He thinks that by combining this treatment with that by inhalation of oxygen, which acts immediately in an attack, the anginal seizure may be arrested, and its reappearance prevented.—*The Lancet*, Sept. 4, 1886.

THE PROPER USE OF ERGOT.—In a paper by DR. F. H. POTTER, which appears in the *Buffalo Medical and Surgical Journal* for September, 1886, the following conclusions are presented:

1. Ergot is a drug, which in any of its preparations, tends to deteriorate rapidly, and should never be used excepting when prepared from a pure and fresh specimen.

2. It is a stimulant to the tubular and non-striated muscular structures of the body, causing them to contract.

3. It acts especially upon the muscular structure of the uterus, throwing it into a state of tonic spasm.

4. Its action on the uterus is, however, uncertain; sometimes it contracts the entire organ, at others only a small part of it.

5. If the entire organ is contracted, labor may be delayed through the rigidity of the os, and the child destroyed by the interference with the placental circulation.

6. Or the contractions may be so powerful as to force the child at once into the world, causing any or all of the lacerations of the soft parts of the mother.

7. The life of the child may be endangered, also, through absorption of the essential oil of ergot.

8. If given after the birth of the child, and before the expulsion of the placenta and membranes, it may prevent the removal of the latter, and thus be indirectly a cause of puerperal septicæmia.

9. It may act in a similar manner in cases of abortion, actual or threatened, and cause a similar result.

10. The proper use of ergot in obstetrical practice is limited to those cases in which, after the expulsion of the placenta, the uterus refuses to contract, or having once contracted shows a tendency to secondary relaxation. Even in these cases, however, reliance should not be placed upon it alone, but its action should be supplemented by the other means used to provoke uterine contraction.

A CASE OF ACUTE MANIA, IN WHICH THERE WAS COMPLETE REMISSION OF THE SYMPTOMS DURING A TEMPORARY PLUGGING OF THE SINUSES.—A married woman, aged forty-one, with neuropathic antecedents, became depressed and nervous, and after some weeks this culminated in an attack of acute mania. Symptoms of commencing hæmatoma developed in the left auricle, but abated, followed, however, by a fully developed hæmatoma of the right ear. The mania persisted for six months, accompanied with considerable failure of bodily health, but at the end of that time she became suddenly quiet and composed, and this marked remission of the maniacal symptoms was coincident in point of time with the appearance of a painless tumefaction over the mastoid cells, and a general puffy and œdematous condition in the orbital region of the right side. Seventeen days afterward the œdematous swelling had

quite disappeared, and the maniacal symptoms reappeared as suddenly as they had subsided.—*Glasgow Medical Journal*, September, 1886.

THE TREATMENT OF PARONYCHIA.—DR. SELLDEN writes in the *Eira* that he has for years made a special study of this subject. The greater number of his patients have been miners, smiths, machine laborers, servants, and others whose fingers are exposed to injury. The disease commences in the subcutaneous tissue, and spreads to the periosteum. There are differences of opinion as to the varieties of this disease, some authors asserting that there are four, others that there are only two—the deep and superficial inflammation. Dr. Sellden, after a series of trials, found the following method most efficacious in the treatment of paronychia. When the patient will consent to an incision, the finger, after it has been opened, is instantly plunged into a tumblerful of hot water, which is then allowed to cool until it is nearly lukewarm. Half a teaspoonful of arnica is poured in, and a teaspoonful of the usual ten per cent. solution of potash is added. This mixture is highly anæsthetic; the finger is held in it for from fifteen to thirty minutes, when the "bad matter" comes out. This expression is very characteristic of the phenomenon. The blood and pus exude in a thin stream about the size of a knitting needle, which forms circles in the alkaline liquid, and finally settles in a thick mass at the bottom of the glass. Fifteen minutes or half an hour after the finger is dried, it is rubbed with vaseline ointment containing ten per cent. of sulphide of potassium. The finger is then immediately enveloped in a poultice which continues warm until the next finger-bath, and thus hastens the cure. These finger-baths are taken from two to four times daily, and the wound is covered during the earlier days with sulphur ointment, and later with a boracic ointment. The finger is then bound up with a wadding compress and a bandage. Carbolic acid may be used in the finger-bath, but Dr. Sellden gives the preference to arnica, which he finds particularly useful in all sorts of injuries. —*The Lancet*, August 28, 1886.

TREATMENT OF DIVIDED TENDONS.—In a paper recently read before the Orthopedic Section of the Academy of Medicine, DR. R. H. SAYRE presented the following conclusions:

1. That after tenotomy the parts should be immediately restored as nearly as possible to the normal position, and there retained during ten days or two weeks; after which time, whatever subsequent treatment may be necessary to vitalize paralyzed muscles, or complete the restoration of natural functions, should be carried out as may be necessary.

2. That this proceeding is accompanied by the least discomfort to the patient, and annoyance to the surgeon, and causes a vast saving of time.

3. That there is no more danger of non-union of the ends of the divided tendon in this manner than by other modes of proceeding.

4. There is less apt to be a thin, imperfect bond of union between the ends of the tendon than when gradual reduction of the deformity is practised.

5. That this mode of operation is applicable at the foot, knee, thigh, or neck, where there is no ankylosis to be overcome, but that in cases of long-standing ankylosis at the knee when tenotomy is but preparatory to *brisement forcé*, the latter should be deferred for forty-eight hours, to avoid possible risk from gaping of the external wound due to the violence of the manipulations.

Should the deformity at the knee be due simply to contractured muscles, immediate replacement may be practised here also.

THE TREATMENT OF A FORM OF DIARRHŒA IN CHILDREN.—There is a form of diarrhœa in children, usually occurring after weaning, and from that period to four or five years of age, which is characterized by the most horrible offensiveness of the motions. This is so marked that it is generally at once mentioned by the parents. It is commonly met with in summer, but is not strictly what is known as infantile diarrhœa, in which disease the stools are sour, but not necessarily fetid. Probably this form of diarrhœa differs from the diarrhœa of younger infants in being caused by the growth of the ordinary bacteria of putrefaction. It is not amenable to treatment by any astringent, nor has any alteration of diet much effect upon it.

DR. JAMES BRAITHWAITE (*British Medical Journal*, July 17, 1886), however, states that it may be successfully treated by disinfecting the bowel contents by means of salicylate of iron as in the following prescription, which is suitable for a child two years of age: Sulphate of iron, ℈j; salicylate of sodium, ℈j; glycerine, ʒiij; water to three ounces. The iron and the salicylate should be dissolved separately and the solutions mixed. The color is darker than that of port wine, and the taste not unpleasant. One teaspoonful must be given every hour, until the stools become well blackened, which happens in about twenty-four hours; or a larger dose may be administered at longer intervals. The medicine should then be given every three or four hours, and occasionally a small dose of castor oil, to clear the bowels well out, and to get the secondary constipating effect of the oil.

In hospital practice, and amongst the poor, it is not so successful as it would be if it were possible to remove the child from the family living-room, the air of which is usually very impure, and is made worse by the smells incidental to cooking, and the presence of a sink.

ELECTROLYSIS FOR THE TREATMENT OF URETHRAL STRICTURE.—At a recent meeting of the Academy of Medicine in Ireland, MR. P. J. HAYES read a paper on the treatment of urethral stricture by electrolysis, the comparatively novel method practised by Drs. Robert Newman, of New York, and S. T. Anderson, of Bloomington. He gave the details of three cases, in which he had himself adopted the method with encouraging results (*British Medical Journal*, July 17, 1886). He strongly advocated the trial of electrolysis even for the most complicated forms of stricture. It does not at all interfere with the subsequent employment of other measures, minor or serious. Electrolysis is best adapted for the treatment of annular strictures rather limited in length. Having ascertained the situation of the stricture, the tip or exposed metal bulb of an electrode ought, if possible, to be lodged within it; or if this

is impracticable, the tip must be in close contact with the anterior face of the stricture. Then a small galvanic battery is connected by its negative pole with the urethral electrode, while the positive may be attached either to a moist sponge electrode or, better still, to a thin metal plate covered with moistened chamois leather. The positive electrode will be advantageously applied either to the patient's perineum or against the inner side of one thigh. As to the strength of the current to be employed, the patient's own sensations will prove the best guide. The current should be perceived, but it ought not to be pushed to cause pain, nor should the surgeon attempt more than it is needful to effect at each sitting, using only mild currents, and manipulating the electrode with gentleness, and never pushing it through the stricture, as it accomplishes more by being allowed to remain in the stricture than by being caused quickly to traverse it. The sittings may be repeated every ten days, if desired. Cauterization results when strong currents are employed, but with mild currents the gradual breaking up of fibroid tissue is effected by a combination of chemical decomposition and vital absorption until but a thin lamella of cicatricial tissue remains to mark the seat of the stricture.—*Therapeutic Gazette*, September 15, 1886.

TREATMENT OF PHTHISIS.—In the August number of *The Journal of Nervous and Mental Disease* DR. LEONARD WEBER, after emphasizing the fact that great nervous depression may frequently accompany the phthisical state, speaks as follows regarding treatment:

So long as we do not know of a remedy which will be at least as good an antidote to the tubercle-virus as mercury is to syphilis, we had better give no drugs to such patients, except for special purposes. But as much good has been accomplished in phthisis and therapeutics by sea and mountain air, the patient ought to be sent to a sanitarium selected with due regard to his individuality and the peculiar features of his case, and into the care of an accomplished physician who has learned to treat and manage phthisical patients rather than phthisis. I am afraid that many physicians are not aware that the phthisical patient needs often a good deal of moral treatment and management before we can depend upon him to carry out systematic and painstaking treatment for months—for years. A careful hygiene, continual supply of fresh air night and day, and yet scrupulous care in avoiding cold in the routine of daily life, proper clothing, frequent baths, and even douches to counteract the bad effects of and limit the profuse sweating, gentle and graduated exercise to invigorate the heart, I consider to be among the principal measures to help the patient in his fight with the disease. Of the utmost importance is the frequent supply of nutritious food by the mouth and by the rectum, combined with the judicious use of stimulants. Feeding, nay, over-feeding, as Debove advises, is indeed the *sine qua non* of an improvement or a possible cure in the case of a patient suffering from so chronic and debilitating a disease as pulmonary tuberculosis.

THERAPEUTICS OF DELIRIUM TREMENS.—PROFESSOR LEUDET, of Rouen, in a valuable article in *La Normandie Médicale*, gives a *résumé* of twenty-two years' hospital practice in the treatment of delirium tremens. He says that long ago he gave up the indiscriminate use of opium and its alkaloids as doing more harm than good. The mortality, which, while using opium, was sixteen per cent. of all cases received, fell to six per cent. after the abandonment of the routine opium treatment. In the commencement of an attack he now makes use of an infusion of quinquinia (from sixty to ninety grains to the pint). This is given freely, is well borne, and seems to cut short an attack. Bromide of potassium and chloral hydrate are both valuable drugs, rendering real service in quieting nervous symptoms and producing sleep. Leudet concludes with Gardner, that where opium is used to the extent recommended by some practitioners the patients as frequently succumb to the toxic effects of the remedy as they do to the delirium itself.—*St. Louis Medical and Surgical Journal*, August, 1886.

TREATMENT OF EPILEPSY.—DR. E. D. FISHER writes as follows in the *Journal of Nervous and Mental Disease* for August, 1886:

In reference to the treatment of epilepsy I depend on the bromides exclusively, usually commencing with thirty grain doses three times a day.

I prefer, as a rule, the mixed bromides, in the proportion of four parts of the potassium bromide to two parts each of the sodium and ammonium bromide; when cardiac weakness is present, employing digitalis or aromatic spirits of ammonia.

I have not found, as some affirm, that iron acts deleteriously, that is, when anæmia is present. Nor does the continued use of the bromides for years even, in my experience, lead to any mental disturbance; in fact, I find a gradual improvement in this respect whenever I succeed in controlling the disease.

In regard to cure of the disease, in my opinion that is less often accomplished than amelioration of the condition.

CLINICAL STUDIES OF THE PUPIL. — SCHMEICHLER has recorded the results of over 5000 observations made upon the pupils of persons in health, of those suffering from acute and chronic diseases, and of the dying and dead. There were observed:

1. Pulsations of those vessels of the iris which are in direct connection with the intracranial vessels showed a systole and diastole occurring from sixty to eighty times in the minute.

2. A movement of the iris dependent upon rhythmic impulses from the vasomotor centre, occurring from two to six times per minute.

3. Protrusion and depression of the iris, coincident with respiratory movements. These correspond with the "spontaneous pupillar movements" described by the author. Such movements were noted during an attack of hystero-epilepsy in a girl of twenty-one years. In this case such variations in the rhythmical movements of the iris occurred in the complete absence of pupillary reaction to light, and were coincident with the forced respiratory movements of the patient. The spontaneous pupillary movements were most marked in excitable, neuropathic individuals.—*Centralblatt f. klin. Med.*, July 10, 1886.

THE MEDICAL NEWS.

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SATURDAY, SEPTEMBER 25, 1886.

MILK-POISONING AT LONG BRANCH.

IT will be remembered that some weeks ago considerable excitement was created at Long Branch by the sudden development, at several hotels, of a number of cases of severe illness, with all the appearances of acute poisoning, and the distribution of the cases speedily caused suspicion to attach to the milk as the vehicle. In this issue of THE MEDICAL NEWS we present a careful study of this epidemic and its causes by DR. W. K. NEWTON and MR. SHIPPEN WALLACE. The paper is a most important contribution to sanitary science, and its deductions must command widespread attention, since it is evident that this cause of poisoning is liable at any moment to be called into existence, with the same direful results.

The practical value of the investigation lies in the fact that, by a careful process of exclusion, there was obtained a rigorous demonstration not only of the origin of the late wholesale milk-poisoning at Long Branch, but, also, of the precise conditions under which the poison in question was developed. It is now conclusively shown for the first time that milk, warm from the cow, when placed in tight cans, under conditions which greatly retard the dissipation of its heat, will undergo change with the development in the course of five hours of enough of a poisonous ptomaine to cause alarming toxic symptoms in those partaking of the milk even in small quantity.

In view of the fact that tyrotoxicon, the poison thus developed, is volatilized at the temperature of 180° F., we find increased reasonableness in the routine practice of thoroughly boiling all milk intended for the use of infants, especially in summer. Not only does such treatment destroy the germs of lactic acid fermentation, but it dissipates an actively irritant poison which is not unfrequently present in greater or less amount.

This investigation, further, teaches the important practical lesson that milk, immediately after being drawn, should be placed in open vessels and rapidly cooled by being surrounded by ice or cold water before transportation. In this way fermentation, with the resulting production of poisonous ptomaines, such as tyrotoxicon, is prevented, and the milk is delivered in a condition proper for consumption.

THE CHOLERA.

THE present outbreak of cholera in Europe is, as we have before had occasion to point out, very different in its course from that of previous epidemics. Beginning in Toulon, in the early part of June, 1884, it appeared in Italy in July, and in Spain in August of the same year, spreading toward the south, rather than, as has usually been the case, to the north. During that year it caused about 7800 deaths in France, 14,300 deaths in Italy, and 600 deaths in Spain. In 1885 it was most violent in Spain, where it caused nearly 120,000 deaths, the mortality being from fifteen to thirty per cent. of the whole population in some localities, more especially in the smaller villages. During the same year it caused 2545 deaths in France. Disappearing almost entirely during the winter, it was again reported in the spring of the present year in Brittany, where it caused about 500 deaths, and at scattered points in Italy and Spain, where it has continued throughout the summer.

Its marked peculiarity, this year, has been the slowness of its spread, both from place to place, and within the larger towns in which it has been reported. In some places the mortality has been reported as very small in proportion to the number of cases; but in others the disease preserves its usual deadly character—as, for instance, in Ravenna, where over half the cases have died. At present the disease seems to be disappearing in Northern Italy, and we hear little of it farther south; but there is reason to think that it is still prevailing in some of the villages and small towns in Southern Italy, to a much more serious extent than the press dispatches would indicate.

What is the reason for this unprecedented lingering of cholera in Southern Europe, for three years, without spreading to the North, and what are the prospects for next year? There is nothing to indicate that the power of the virus is any way weakened or attenuated; if the disease depends on a micro-organism, that organism appears to be just as lively,

to multiply just as rapidly, and to produce as fatal results, as shown in San Giovanni Rotundo during the last week in August, as ever. Nor can the slow progress of the disease be entirely explained by meteorological conditions, for, although the summer has been everywhere cool, it has not prevented sharp attacks in some localities. It seems difficult to come to any other conclusion than that the spread of cholera has been hindered by the precautions taken, by the increased and better disinfection which has been practised, by the greater care which has been taken of the sources of water supply. It is a noteworthy fact that it is not in the large cities of Italy and Spain that cholera has spread most rapidly, and has been most destructive, but in the villages, where the risks of water contamination are greatest, and where the people are most ignorant of modern methods of dealing with contagion.

As to future prospects, we can only conclude that the germs of the disease will linger in Southern Europe throughout the coming winter, and that it will probably again appear next spring in Italy, and possibly in Austro-Hungary. The danger to this country is, therefore, by no means over. At the same time there is more ground for hope that sanitarians will be able to stamp out the disease in Europe before it has been brought to us than there was in 1884 and 1885, when we had only the experience of previous epidemics to guide us. It must not be forgotten that cholera exists now as an epidemic in some parts of Japan, and that there is some risk of an invasion of this country from the West as well as from the East. This outbreak of cholera in Europe has induced a vast amount of cleaning up, and of interest in sanitary work in the United States, which has been of great benefit already; and the obvious deduction is that the best thing that our States, cities, and towns can do, is to go on, and act precisely as if they expected that cholera will reach our shores next summer.

HEALING UNDER BLOOD-CLOT.

ONE of the most interesting papers read at the last Congress of German Surgeons was by Schede, of Hamburg, in which he gave the results of his experience with a plan for securing the healing of wounds, which is diametrically opposed to the general idea in regard to the management of blood-clots. It is usual to regard these as among the most inauspicious of foreign bodies, and to regard their removal as indispensable to prompt and successful healing. Since the general use of antiseptics, it has been frequently observed that the presence of a clot may not do any harm; that, in fact, the clot may become organized. Observing this fact, Schede has boldly made use of the blood poured out into a variety of surgical wounds to secure a protecting covering, which has the advantage of doing away with the necessity for drainage or compression. In the operation of Phelps for club-foot—open division of all the contracted soft parts, down to and including the astragalo-scaphoid ligament—he found that if he simply covered the gaping wound with a bridge of protective silk, placed over this a good antiseptic dressing, and secured fixation with plaster bandages, he could leave the wound to itself without concern; and that, after three or four weeks, there would be solid cicatrization, or only a short, narrow strip of granulation, or a little strip of leather-colored clot, still attached along the middle, as the sole remains of the large mass of blood which filled the wound immediately after the operation. In this way not only does the skin unite, but all the soft parts—muscles, tendons, and ligaments—assume their normal functions. In manner similar to this, Schede found a very large number of operations to heal without mishap. Of these he gives a list comprising 241 operations, including 40 resections of joints, with 37 typical recoveries; one resection of a piece of the wall of the thorax as large as the palm of the hand, with typical healing; 18 operations in which he chiselled out tuberculous foci in bone, with free opening of the joint, all with typical healing; 29 cases of removal of necrosed bone, with 27 typical recoveries; 20 open operations for club-foot, all with typical healing; 10 operations of scraping off of fungous granulations of the sheaths of tendons, with suppuration in only 2 cases; 24 cases of removal of tumors, with slight suppuration in only two. In one case he saw a large blood-clot become organized in the lacerated brain, after a severe complicated fracture of the skull; and once, in a fracture of the elbow-joint, in which he had to make a deep incision into the joint, to relieve tension, the wound being about nine inches long and three inches wide, the blood-clot remained in place for over three weeks, until the fracture was consolidated.

The method pursued in securing these extraordinary results was, where possible, to employ Esmarch's bandage, to observe the most scrupulous asepsis, and to remove every portion of diseased tissue. Large wounds were closed with sutures, placed at such intervals as to leave only one or two openings about half an inch long, to permit the escape of superfluous blood into the dressing. In some cases a counter-opening was made for this purpose. Schede found that the skin united well over considerable cavities, such, for example, as are left after an operation for necrosis, and that unsutured wounds, like that after Phelps's operation for club-foot, healed equally well. No drainage tube was used. The wound was covered with a piece of protective for two purposes: first, to secure complete filling of the wound with the blood-clot, and second, to keep this moist by preventing

its absorption by the dressings, which were only intended to absorb the excess of blood. Over all was placed a thick antiseptic dressing of sublimate gauze and cotton, and sublimate moss bags. It is important, in order to secure the filling of the wound with blood, that when a counter-opening is made, it shall be at the highest point, instead of, as usual, at the lowest. In regard to the control of hemorrhage, when no large vessels were wounded, and the bleeding was not profuse, no account was taken of it. Arteries of any size were ligated, of course, and the filling of the wound was left to the parenchymatous bleeding.

Perfect asepsis is indispensable to Schede's method. If any doubt exists in regard to having secured it, he advises filling the wound with antiseptic material, such as iodoform gauze, or sublimate gauze, or bismuth, and leaving it till granulation is established, after which the filling of the wound with blood can be secured by shaving off the granulations, and the cure will be hastened materially.

Schede is convinced that this method will soon secure many friends, because of its great convenience, and because it secures the safest, quickest, and most perfect healing, and often the most perfect functional results. The knowledge of his success will go far to fulfil this expectation, which will be aided by reflection upon facts which must have been observed by many a surgeon who has been already compelled to act as he has done without any well-defined purpose, such as prompted Schede to adopt and recommend this as a general method; for which reason it may well be called by the just and convenient name of "Schede's method."

PERLÈCHE.

UNDER this term LEMAISTRE, in *Le Progrès Médicale*, describes a parasitic disease of children, characterized by an affection of the lips, appearing first at the angles of the mouth and gradually involving the epithelium of both mucous and cutaneous surfaces. The heat and irritation cause the children to lick the lips, hence the name *perlèche—lécher* or *perlécher*, to lick—given by the people of the district in which it prevails. The lesion seems confined to the epithelial layers, and resembles closely a mucous patch. Small fissures may form, particularly at the angles of the mouth, and may bleed and cause great pain. The disease is not severe, lasts from two weeks to a month, relapses are common, and attacks may recur yearly. It is highly contagious and is probably communicated in the schools by the drinking cups. The statistics of the affection are interesting. In Limoges, of 5500 children attending the schools 312 were attacked. In the winter, when these figures were collected, the disease is not very prevalent, but in the spring and summer months the cases become very numerous. A microbe was readily discovered in the exudation—a streptococcus—and it is claimed that one similar in general character was found in the water adjacent to the infected schools, but the evidence of the identity of the two and of the actual dependence of the disease upon it, is not well sustained.

Possibly this affection is the same as certain forms of sore lips in children, which we see here at times, but never, so far as we know, in epidemic form. It may be allied to aphthous stomatitis, which is unquestionably contagious, and which in Holland, and occasionally in this country, has been epidemic during very moist seasons, or after inundations. Very good evidence of the spread of the disease in families is given in the *Gazette Médicale de Paris*, for August 21st.

CHARLESTON experienced, last Tuesday, three more earthquake shocks, resulting in still further injury to her buildings. We particularly regret to learn that additional damage was done to her Medical College building, of which a large part of the walls fell in, so that it is now a gaping ruin, and apparently the remaining walls are so badly cracked that they will have to be pulled down to the basement.

The misfortunes which have overtaken our medical brothers of Charleston appeal silently but eloquently to the profession in other parts of the Union for liberal aid. The individual losses of the physicians of Charleston are so great that they are at present entirely unable to contribute to the rebuilding of their Medical College, which, although a time-honored institution, is without endowment. In this crisis pecuniary assistance should be forthcoming—promptly, liberally, and from all parts of the country. Aid now given will enable the Faculty to continue their labors, and, by holding their students in Charleston, to do their share toward promoting the revival of business in the earthquake-stricken city.

THE MEDICAL NEWS will be happy to facilitate contributions by acknowledging in its columns the receipt of all sums sent to its care, and will forward the same to the Medical Faculty.

As a supplement to our editorials on the method of Antyllus for the treatment of aneurism in THE MEDICAL NEWS of May 1st and 29th, of this year, we would call attention to a recent communication by KÖHLER, in the *Charité Annalen*, in which he reports its successful employment in a case of aneurism of the popliteal artery, rapidly developed, in a man twenty-seven years old. Instrumental and digital compression had proved useless, and Köhler excised the sac, which was four inches long by three inches wide, with about two and a half inches of the popliteal vein, and ligated the artery above and the tibiales

anticus and posticus below. The opening made was as large as two fists. It was closed with sutures and a drainage tube inserted. Healing occurred by first intention and no functional disturbance resulted from the operation. Köhler has collected the records of fourteen such operations since 1875, all successful.

ANOTHER volume of the *Index Catalogue of the Library of the Surgeon-General's Office* has just been issued. It comprises 959 pages and extends from "Insignarès" to "Leghorn." Like its predecessors, it has been compiled under the supervision of Surgeon J. S. Billings. An idea of the magnitude of the work which Dr. Billings has undertaken may be formed from the statement, that this seventh volume of the Catalogue includes 14,688 author-titles, representing 5,987 volumes, and 12,372 pamphlets, and 6,371 subject-titles of separate books and pamphlets, and 34,903 titles of articles in periodicals. As evidence of its comprehensiveness, and of its value as a guide to study, we may note that under the heading of "intestines," there are sixty double-column pages of references, under "labor" we find fifty pages, and the "larynx" furnishes over forty.

We find in this volume the same intelligent treatment of details and freedom from error in proof-reading which have characterized the previous volumes of this great work.

HYSTERIA in soldiers is a condition which, until a comparatively recent date, has been entirely unrecognized. Its existence, however, may now be regarded as established, especially convincing evidence having been lately adduced by DUPONCHEL, who, in the *Revue de Médecine*, 1886, No. 6, records *in extenso* the clinical histories of numerous soldiers in the French army who suffered unequivocally from hysteria, and in some cases from the so-called *grande hysterie*. Ignorance of the facts here presented has undoubtedly caused those actually suffering from hysterical convulsions to be regarded either as malingerers or epileptics.

REVIEWS.

DIE INTOXIKATIONSAMBLYOPIEN. Von DR. OTTO BERGMEISTER, Docent der Augenheilkunde an der Wiener Universität. 8vo. pp. 21. Wien: Urban & Schwarzentry.

TOXIC AMBLYOPIAS. By DR. OTTO BERGMEISTER.

DR. BERGMEISTER arranges these, according to their causation, in four groups. First, those due mainly to working with certain substances, such as the amblyopia and amaurosis to which workers with lead, bisulphide of carbon, etc., are liable. Second, chronic poisoning through the abuse of narcotics, as alcohol, tobacco, opium, and haschisch. Third, acute poisoning by certain medicinal substances, as quinine, salicylic acid, bromide of potassium, etc. Fourth, poisoning by snake-bite with subsequent loss of sight.

Cases of alcohol and tobacco amblyopia are the most frequent. To alcohol is assigned the greater influence in this direction, though chronic alcoholism, in which it occurs, is usually associated with the excessive use of tobacco. The comparative infrequency of the affection also indicates that individual predisposition plays an important *rôle* in its causation. The diagnosis does not rest upon the ophthalmoscopic appearances; but on the acuity of vision, the condition of the light-sense and the color sense, and especially on the oval central scotoma for red and green. Central visual acuteness may be greatly diminished, but the light-sense is unimpaired, the patient actually seeing better by a weak light. The ophthalmoscope shows early a slight hyperæmia of the disk with indistinctness of its margins, and later atrophy of the temporal portion of the nerve. The affection is one of the optic nerve, an axial neuritis near the apex of the orbit. Under treatment the prognosis is good except in advanced atrophy. Treatment consists in enforcing abstinence and the management of digestive derangements. Carlsbad salt in warm water, hydrotherapy with free diaphoresis, and injections of strychnia are recommended.

Of amblyopia due to lead-poisoning four forms are recognized, as by Leber: 1. Sudden binocular blindness; vision rapidly reduced to mere quantitative perception of light. Pupils dilated and fixed. Ophthalmoscopic appearances negative, or slight hyperæmia of the retinal vessels with blurring of the margins of the disk. Some of these cases are looked upon as analogous to sudden amaurosis caused by uræmia. These are to be treated by pilocarpine and the use of alkaline waters. Others are regarded as retrobulbar neuritis, which may also end in recovery, or in atrophy with impairment of vision. 2. Gradually increasing amblyopia, usually with central scotoma or concentric narrowing of the field of vision; sometimes color scotoma; impairment of the light-sense; and the same ophthalmoscopic appearances as the first form. These are also regarded as instances of retrobulbar neuritis. 3. Violent optic neuritis tending to pass quickly into atrophy. These cases may begin with sudden blindness or pass gradually to amaurosis. The prognosis is usually unfavorable. There are apt to be associated lesions of other cranial nerves, or of the brain. The urine is free from albumen. 4. Albuminuric retinitis occurring where albuminuria has been caused by lead-poisoning.

Amblyopia due to exposure to the fumes of bisulphide of carbon and chloride of sulphur occurs among workmen engaged in vulcanizing India-rubber. Usually it is preceded by other marked evidences of chronic poisoning. Subjective colors are noticed; there is paresis of accommodation, the visual acuity is lowered, and a central color scotoma occurs. The ophthalmoscope reveals evidence of an optic neuritis or perineuritis succeeded by atrophy. The prognosis seems favorable when further exposure to the cause can be avoided.

In quinine amaurosis the blindness comes on very rapidly and is often absolute, not a trace of the power of light-perception remaining. The pupils are dilated and fixed, the retinal vessels greatly contracted or entirely invisible, the optic disk chalky-white. The

prognosis is, however, quite favorable. The ophthalmoscopic appearances become normal. Sight returns and the acuity of central vision generally becomes perfect, but the field of vision enlarges slowly or remains permanently contracted in the form of an ellipse with the long axis horizontal. The dose causing these symptoms varies from three to eighty grammes, the latter taken in the course of two days. The inhalation of nitrite of amyl is recommended to relieve the retinal anæmia.

Cases of amaurosis, apparently similar to that produced by quinine, have been caused by salicylic acid, salicylate of sodium, and bromide of potassium. Cases of amblyopia have been reported due to poisoning by various other agents, as santonin, carbolic, osmic and hydrocyanic acids, opium, haschisch, mercury, and nitrate of silver.

CLINICAL THERAPEUTICS. LECTURES IN PRACTICAL MEDICINE, DELIVERED IN THE HOSPITAL ST. ANTOINE, PARIS, FRANCE. By PROF. DUJARDIN-BEAUMETZ. THE TREATMENT OF NERVOUS DISEASES, OF GENERAL DISEASES, AND OF FEVERS. Translated by E. P. HURD, M.D. Detroit, Mich.: George S. Davis, 1885.

DISEASES OF THE STOMACH AND INTESTINES. A MANUAL OF CLINICAL THERAPEUTICS FOR THE STUDENT AND PRACTITIONER. By PROF. DUJARDIN-BEAUMETZ. Translated from the fourth French edition by E. P. HURD, M.D. New York: Wm. Wood & Co., 1886.

These two volumes are taken from a series by Prof. Dujardin-Beaumetz, entitled *Leçons de Clinique Thérapeutique*, of which the work *Clinical Therapeutics* is the third and last volume and *Diseases of the Stomach and Intestines* is the first. But from the latter is omitted the first part of the French volume, including diseases of the heart and aorta. The second volume of the French series on the treatment of diseases of the liver, kidneys, lungs, pleura, larynx, and pharynx passed through its fourth edition in 1885. This, with the first part of the first volume above alluded to, we have not as yet in English, but it is to be hoped that ere long both will be added to the series.

Clinical Therapeutics, after a short discussion of the general subject from which the volume takes its name, is divided into three parts. The first part embraces short sections on the nervous system from a therapeutic standpoint, hydrotherapeutics, medical electricity, and chapters upon the treatment of neuralgia, hysteria, epilepsy, chorea, meningitis, apoplexy, and chronic myelitis. Part second takes up general diseases, discussing the blood, with instructive sections on bloodletting, the treatment of anæmia, acute rheumatism and gout, diabetes, and syphilis. Part third, after an introductory treatise on fever, deals minutely with the treatment of typhoid fever, intermittent fever, and the exanthemata. Not the least interesting of the contents of this volume is a short biography of Prof. Dujardin-Beaumetz, with a bibliography of his published works, contained in the translator's preface.

Diseases of the Stomach and Intestines are discussed in twenty-five lectures, and the subjects included are alimentation, regimen, and lavage and gavage of the stomach, dyspepsia, vomiting, neuroses of the stomach, buccal and intestinal dyspepsia, secondary dyspepsia and that of newborn infants, ulcers and cancers of the stomach, the intestine from a therapeutic standpoint, the treatment of constipation by hygiene and purgatives, and the treatment of intestinal occlusion, diarrhœa, dysentery, hemorrhoids, and intestinal worms. The titles show how comprehensive is a work which does not even pretend to be a handbook.

A large place is given in this volume to the hygienic treatment of disease; the necessity of pure air, of suitable exercise, of a proper dietary regimen, etc., is everywhere insisted on. Both volumes are enriched with copious annotations, giving concise summaries of the fruits of Continental research, and with valuable bibliographies suggestive of the immense amount of reading and clinical experience which have fitted the author to speak authoritatively to the medical public; and it is hardly possible to estimate the debt which the English-speaking branch of the profession owes to Dr. Hurd for placing these volumes in their hands.

SOCIETY PROCEEDINGS.

RHODE ISLAND MEDICAL SOCIETY.

Quarterly Meeting, held at Providence, Sept. 16, 1886.

THE PRESIDENT, DR. HORACE G. MILLER, called the Society to order.

DR. F. C. CLARK reported a case of *Abscess of the Mastoid Region.*

DR. ANITA E. TYNG, of Philadelphia, read a detailed report of two cases of

ABDOMINAL SECTION FOR OVARIAN DISEASE,

both ending in recovery from the operation. In one case both ovaries were found to be enlarged, but so adherent that it was impossible to remove them. In the second case, a cyst and contents, weighing 36½ pounds, were removed. The operations were performed at the Woman's Hospital, Philadelphia.

DR. F. C. CLARK read a paper on the

RELATION OF THE APOTHECARY TO THE PHYSICIAN,

and at its conclusion submitted the following resolutions:

Whereas, The introduction by apothecaries of certain remedies has had an injurious effect upon the profession of medicine, and tends to the usurpation of its functions:

Resolved, That the members of the profession use every means at hand to discountenance and discourage the employment in their prescriptions of any and every remedy put up and sold by any druggist, apothecary, chemist, or pharmacist, which compound comprises two or more medical substances, and has upon its label, wrapper, or both, the ailment or ailments for which it is to be employed, with or without the dose, and appended thereto some name or title to attract attention to it, whether of physicians or others, and thus contribute to the injury and dishonor of the medical practitioner; and, furthermore:

Resolved, That all such remedies, with or without the name and character of their ingredients, be interpreted in the same manner and spirit as are those nostrums coming under Article 1, Section IV., page 37, of the Code of Medical Ethics.

After some discussion, it was voted that the resolutions lie over until the next regular meeting.

THE CHAIR announced that at the last annual meeting a proposition was made to appoint

A BUILDING COMMITTEE,

and that the objection was then raised that it would be unconstitutional to use the funds of the Society for the erection of a building. On examining the Constitution, he had found that the Society could hold real estate that should yield an income to the amount of only $500 per annum. He had, therefore, withheld his appointment of the committee, and recommended that the Legislature be petitioned to make the necessary changes in the Society's charter.

On motion of Dr. White, the Chair was authorized to apply for such an amendment.

The Chair announced the deaths of two Fellows—Dr. Charles F. Fabyan, of Providence, and Dr. Aldrich, of Wyoming, R. I.

DR. O'LEARY spoke of a very severe type of

ACUTE DYSENTERY

that is now prevalent in Providence, and reported three fatal cases that he had seen.

DR. L. F. C. GARVIN, of Lincoln, R. I., reported on the

PREVALENCE OF MALARIAL DISEASE

in Rhode Island, and said that he had seen no less than twelve fatal cases during the past five years. He regarded malaria as a very severe and dangerous disease, and one that should be brought under control as promptly as possible. In the fatal cases he had seen, death was preceded by coma, and had not resulted from the so-called congestive chill. He had heard of only one case in Rhode Island of the latter type.

The Society then adjourned, and took steamer to Silver Spring, where a shore dinner was enjoyed.

CORRESPONDENCE.

EXCISION OF VARICOSE VEINS.

To the Editor of THE MEDICAL NEWS,

SIR: With reference to your editorial on "Excision of Varicose Veins," in the issue of THE MEDICAL NEWS for September 11th, p. 291, allow me to say that on my recent visit to Europe I saw Mr. Clutton, one of the assistant surgeons to the St. Thomas Hospital, London, operate for the cure of varicose veins by excision, and also for varicocele by the same method.

He made, under chloroform-anæsthesia, a longitudinal incision four or five inches long along the course of the most prominent veins, isolated the vein by a neat dissection with the handle of the scalpel, tied it at each extremity of the incision, and cut out the intervening portion. He made three such incisions, parallel, about an inch or so apart, and removed an equal portion of the vein in each.

The operation for varicocele was done in a similar way in the case of a young man about nineteen years of age, who desired to enlist in the British army—the trouble being considered a defect, and cause for rejection both in the British army and also in the United States army. The incision, like that for varicose veins, was made along the course of the enlarged veins, the most prominent one separated, two ligatures applied, one above and one below, an inch and a half to two inches apart, the portion between removed by scissors, and exhibited to the students, which showed great thickening of its coat, being nearly patulous throughout. The incisions were closed by sutures, iodoform powder dusted over, and the usual antiseptic lint and gauze bandage applied.

I did not see the result of these particular cases, but was told that other similar cases operated on uniformly did well. No mention was made by the operator to the students or others, of any apprehension of danger from the operation, and as it proceeded and ended without the usual antiseptic precautions one might suppose was demanded in such cases, the inference was that it was looked upon as one of the usually necessary operations unattended by any particular risk or danger, and causing no uneasiness as to the result. The operation in both cases was smoothly, evenly, and quickly performed, and has much in it to recommend it in this field of surgery.

S. J. RADCLIFFE, M.D.
1523 K STREET N. W., WASHINGTON, D. C.

DILATATION OF STRICTURE OF THE ŒSOPHAGUS AFTER GASTROSTOMY.

To the Editor of THE MEDICAL NEWS,

SIR: In an interesting editorial article in THE MEDICAL NEWS, upon "Dilatation of Stricture of the Œsophagus after Gastrostomy," the statement is made in regard to the method advocated by Dr. Victor von Hacker, of Vienna, that "it does not appear that this plan has ever been put into practice." Dr. von Hacker states, in his monograph "Ueber die Magen-operationen, etc., that he recommends the method, because he had obtained a good result in a cicatricial stricture of the œsophagus, by the introduction of a Nélaton catheter stretched over a whalebone guide. In a letter to me, dated July 27th, 1886, he mentions two cases in which the operation of dilatation by the use of drainage tubes attached to filiform guides had been performed; in one of which he states that the operation had already been successful; the other had been but recently performed at the time of writing.

Yours respectfully,

RANDOLPH WINSLOW.
1 MOUNT ROYAL TERRACE, BALTIMORE,
September 14, 1886.

NEWS ITEMS.

PARIS.

(From our Special Correspondent.)

PSEUDO-INSENSIBILITY TREATED BY MASSAGE.—A paper recently read before the Academy of Sciences dwelt at length on pseudo-anæsthetic conditions masking actual sensibility which is aroused by prolonged stimulation. In locomotor ataxia, hysteria, and hemiplegia resulting from brain lesion, this pseudo-stimulation anæsthesia is often present and extends over a limb or one-half of the body.

No effect is produced on these patients by rubbing for a short time, however thoroughly it may be done;

but long-continued friction produces an impression more and more vivid as it goes on. More than this, the revival of sensibility does not only last for the moment, the effect obtained may persist and even increase from day to day. For example, it might be supposed that in people suffering from apoplexy, that after the occurrence of the accident which interrupted the communication between the brain centre and a certain part of the contiguous nerve centres, a prolonged effort must be necessary in order that the impression produced be transmitted and thus reëstablish the connection. Whatever the explanation may be, the fact exists and had already been noticed by M. Legroux. At the present time M. Ball and M. Courtade are making experiments relating to this subject. In the same way that there exists often a latent sensibility only requiring to be aroused, so in other patients the motor power may be dormant, and to reinduce action all that is necessary is to produce excitement by direct stimulation of the muscles. This can be done by electricity, but, when properly managed, massage is quite as good. M. Courtade groups his patients in different classes. There are in the first class persons paralyzed after brain apoplexy. Massage has produced effects on them which are truly surprising; in some instances the condition was recent, in others of long standing, and paralysis was in some accompanied with contracture. A man aged sixty-two, attacked with apoplexy three months ago, walked with difficulty. The left hand was quite useless. After one treatment by massage, lasting half an hour, he was so much better that he could energetically move his left hand and almost walk without a stick.

Another case is that of a sculptor who was attacked with apoplexy five years ago, and remained paralyzed on the left side. After eighteen months in the hospital he left, though walking with difficulty, but was obliged to return, as the upper limb of the left side being useless he could do no work. There was also contraction of the biceps. At first M. Courtade commenced by treating the upper limb with massage; the treatment was applied on four or five different occasions spreading over a month and a half. At the present time the paralysis of five years' standing and the resulting contracture have almost entirely disappeared in the upper limb. As to the lower limb, after massage being applied once it appeared more contracted the next morning, but afterward became much freer.

In a second class are patients who have been paralyzed after an attack of typhoid fever. For instance, a man aged twenty-one had typhoid fever last year and has been paraplegic ever since. He has undergone treatment by massage combined with electricity, and the results, though not yet complete, are still very good. At the present time he can walk with crutches.

M. Courtade has already obtained an almost complete recovery in the case of a young woman paralyzed after an attack of typhoid fever. Another woman, who had had typhoid fever when nineteen years of age, was not attacked with paralysis until eighteen months later, when she was suddenly seized with apoplexy, lost consciousness, and on recovering was found to be speechless and paralyzed in both legs and the right arm. Aphasia lasted six weeks and paralysis of the right arm two years. Later on, the lower limbs suddenly regained the faculty of executing movement. Three years ago the patient recovered the power of walking, but she accidentally fell and the two lower limbs again became paralyzed. She was from that time subject to attacks of hysteria, and presented the general aspect of a hysterical person. It is possible that hysteria being an etiological factor in the paralysis, trophic disturbance occurred. The lower limbs became swollen to an abnormal size; no muscles were distinguishable. The feet were bent and a painful feeling of cramp disturbed the patient's sleep. After the first treatment by massage there was a distinct improvement, which increased on each occasion. M. Courtade was careful that after gradually drawing out the feet they should be kept extended by an immovable apparatus. The pseudo-fat was rapidly absorbed. The legs, which had remained motionless for a long time, can now be raised more than a foot above the bed, and she can get up and dress herself.

THE LONDON HOSPITAL SUNDAY FUND amounts this year to over $180,000, being $25,000 more than it was last year.

POISONING BY POTASSIUM CHLORATE.—A workman in Vienna, suffering from inflammation of the throat, was given two ounces of chlorate of potassium, with verbal instruction to use it for a gargle; the only instruction upon the prescription was, however, "a coffeespoonful in a glass of water." The patient's wife gave her husband a spoonful at one o'clock, and another at two, in a medium size tumbler of water, and half a spoonful about five, and another about six. Abdominal pains and diarrhœa set in shortly after taking the first dose. At 7.30 profuse perspiration came on, and, about nine, sleep. At ten the patient became unconscious, and at one in the morning death took place.

A NOVEL OBSTETRICAL EXPEDIENT.—Dr. Shustoff writes in *Russkaya Meditsina* of April, 1886, that he was called to see a woman who had been in labor five days. The pains had begun well, but had since ceased. Upon examination, he saw something black protruding from the anus, and a little pulling brought to light a sausage over seventeen inches long and fourteen inches in circumference. The pains now began again, and the woman was soon delivered of a dead child. Dr. Shustoft found on inquiry that the sausage had been introduced on the recommendation of an old woman of the neighborhood in order to insure the birth of the child by the normal passage. This was probably the old wife's best attempt at supporting the perineum.

DEATH FROM CHLOROFORM.—Lady Flora Wilmot died at Swansea, England, after taking chloroform in a dentist's chair for the extraction of a tooth. The anæsthetic was administered by a physician. The patient had taken chloroform twice before without any bad effects. In all, but two drachms were used. All attempts to restore the patient by the use of nitrite of amyl and artificial respiration were of no avail. The physician remarked, immediately after the extraction of the tooth, "I hate giving chloroform for you dentists because you will have your patients sitting up." Both the dentist and the physician were exonerated by the jury which

was called to hold an inquest. *Science* comments on this case as follows: "The evidences of the danger in the administration of chloroform are so overwhelming, except in a few cases, that no one is justified, at the present day, in using it in so simple an operation as the extraction of a tooth; and a jury would be doing its full duty in holding responsible for the death of the patient any physician or dentist who administered it in such a case with a fatal result."

A FELLOWSHIP IN PATHOLOGY yielding five hundred dollars in addition to free tuition, will be granted by the Johns Hopkins University in October, 1886, if a suitable candidate applies.

The application must be made prior to October 1. The candidate must give evidence of a liberal education (including especially physics, chemistry, biology, and modern languages) and of special aptitude for pathological study, such as that afforded by some previous scientific work. The holder of the fellowship will be expected to devote his time to some special line of investigation (not strictly professional) under the direction of the Professor of Pathology. Further information concerning the purposes and the regulations of University fellowships is contained in the Annual Register.

A FORTUNATE UNIVERSITY.—Since 1879 the University of Sidney has received donations exceeding a million of dollars. One bequest, known as the Challis bequest, is expected to realize £200,000. The Macleay Natural History collection, another recent gift, is valued at £25,000, and a sum of £6000 has been promised for the endowment of a curatorship in connection with it. For the purpose of founding a library, a donation of £30,000 was made.

BOMBAY HOSPITAL FOR WOMEN.—The *Times*, of India, gives an account of the opening of the Cama Hospital (officered entirely by women) by his Excellency Lord Reay, Governor of Bombay, in the presence of a very large assembly of friends, on July 30. The foundation stone of the hospital had been laid in November, 1883, by his Royal Highness the Duke of Connaught. In opening the hospital, Lord Reay remarked that there was no movement in India in which Her Majesty felt greater personal interest.

FRENCH VITAL STATISTICS.—It was stated by M. Bertillon, in a lecture recently delivered at the Hygienic Exhibition in Paris, that the movement of the population for the past year throughout France had been very unsatisfactory, the total number of births being 922,361, or, upon the average, 30,000 fewer than for the last fifteen years. Moreover, out of this total, 74,118 were illegitimate, or rather more than eight per cent. of the whole, this being the largest number of illegitimate births ever recorded. Upon the other hand, there had been a slight reduction in the number of deaths, the total for 1885 being 836,897; but still, the excess of births over deaths was only 85,464.

SMALLPOX AND VACCINATION IN NEW YORK.—The following is an extract from the Fifth Annual Report of the State Board of Health of New York (p. 454, April, 1885): "The objections and occasional resistance to vaccination which are met with among immigrant passengers, indicate a considerable scepticism in European communities, more particularly among the English people, as to the protection afforded by it, or else a fear that constitutional disease will be introduced by that means. The groundless character of the fear that disease will be communicated by vaccication, when proper care is used in the selection of the vaccine virus, has been too often demonstrated to require any argument in this place. The result of the teachings and influence of the anti-vaccinationists is well illustrated by the fact, that in the hospitals of the city of New York not a single case of smallpox exists at this time, while in the city of London the reports have shown for months past an average of upwards of eleven hundred cases in hospital. In New York city, where a 'from house-to-house' inspection and search among the tenement population for the unvaccinated is practised every year, smallpox is not met with, except as it was imported and developed by persons from other localities; in London, the weekly average of new cases, as indicated by bills of health and the number in hospital, has been from four to five hundred. The number of cases of smallpox on vessels that entered that port in 1883 and 1884, was twenty-five."

ICE IN THE SICK-ROOM.—A saucerful of shaved ice may be preserved for twenty-four hours, with the thermometer in the room at 90° F., if the following precautions are observed. Put the saucer containing the ice in a soup-plate and cover it with another. Place the soup-plates thus arranged on a good heavy pillow, and cover with another pillow, pressing the pillows so that the plates are completely embedded in them. An old "jack-plane," set deep, is a most excellent thing with which to shave ice. It should be turned bottom upward and the ice shoved backward and forward over the cutter.

DOCTORING AN AFRICAN KING.—The following extract is from the correspondence of the *Scottish Geographical Magazine*: "It is no joke to be doctor to the King of Uganda, for whenever I took him a new supply of medicine I had always to take a dose myself, and to administer one to seven of the persons who might happen to be present. Should one of the seven unfortunates die within a week, it would be considered that I had attempted to poison the king. If the king had to take a pill, I had always to hold two in my hand; he chose one, and I had to swallow the other, unless I had a friend with me who kindly undertook the office. I soon noticed, however, that Mtesa also chose the smaller, so I arranged accordingly. One day Mtesa played me a nice trick. I had been to the palace to take him a lotion, and had warned him particularly not to drink it. After I had left he sent a page after me with a gourd of mwengi, asking me to taste it, and say if he might have some. I did so, and said, "Yes." It being a very hot afternoon, my friend drank the remainder; but it soon became evident that the king had doctored the wine, for my friend became violently sick. It turned out afterward that Mtesa wished to see what effect the lotion would have upon me."

AMERICAN RHINOLOGICAL ASSOCIATION.—The fourth annual meeting of this Association will be held at St. Louis, Mo., on October 5, 6, and 7, 1886.

PATENT MEDICINES IN AMERICA. — The *Western Druggist* informs us that recently published statistics state there are 5000 proprietary articles of home manufacture on the American market; 500 of these are of commercial importance, and 50 are run as an independent business. The patent medicine trade of the United States is $22,000,000 annually; of this $10,000,000 is annually expended in advertisements, and the net profit amounts to $5,000,000.

The traffic is the work of the past half century, most of the patent medicines having sprung up since 1830. Not one in a thousand patent medicine men have succeeded. There are five firms which have made $1,000,000 each; twenty others will aggregate $5,000,000, and the net savings of all the rest will not reach another $5,000,000. More patent medicines proportionately are sold in the United States than elsewhere. The great middle class buys most of them. The profits from and expenditures on established patent medicines run about as follows:

Expenses.	Per cent.
Cost of material, labor, and expenses	24
Advertising	12½
Jobbers' expenses	3½
Retailers' expenses	21
Total expenses	61
Profits.	
Manufacturers' profit	12½
Jobbers' profit	5½
Retailers' profit	21
Total profits	39

The smaller country newspapers subsist largely upon advertisements of these "remedies," and at least $100,000,000 have been paid newspapers during the last two decades, while upward of $5,000,000 have been expended in rock and fence advertisements.

The field for new patent medicines is narrowed every day. Cathartic pills and sarsaparillas do not succeed readily, because so many well established specimens occupy the field. Until the stamp tax was abolished, patent medicines yielded the government $1,800,000 annually. The census of 1880 shows that there were then 563 establishments in this line in the United States, employing 4015 operatives; that the capital invested was $10,620,000, and that the value of the annual output was $14,682,000. New York stood first in the amount of capital invested ($3,512,430), and in annual output (nearly $4,500,000); Pennsylvania second in capital invested, $2,000,000, and third in annual output, $1,000,000; Missouri third in capital, $1,500,000, and fourth in annual output, $750,000; Ohio fourth in capital, $570,000, and fifth in annual output, $450,000; Massachusetts fifth in capital, $521,000, and second in annual output, $1,500,000.

PASTEUR'S WORK.—Professor Virchow is reported to have said, in a recent lecture in Berlin, that Pasteur had done the world a great service if he had succeeded only in allaying the fear consequent upon the bite of a mad dog.

HYDROPHOBIA does not exist in Lapland; but two dogs brought from that country having been inoculated by M. Pasteur, contracted rabies, proving that Lapland dogs are not refractory to the disease.

WOMEN STUDENTS IN PRUSSIA.—In virtue of a recent decision of the Prussian Minister of Public Instruction, no women are permitted to attend any of the Prussian universities, either as students or auditors.

SCIENTIFIC EXPERTS AS WITNESSES.—Let us look at this question as it presents itself to men of science, alike to the chemist, the physicist, the mechanician, the geologist, the physician, and the microscopist, though certainly not to the astronomer, who is in no danger of being called, as such, to give his testimony. The expert occupies a totally anomalous position in court. Technically he is a mere witness; practically he is something between a witness and an advocate, sharing the responsibilities of both, but without the privileges of the latter. He has to instruct counsel before the trial and to prompt him during its course. But in cross-examination he is the more open to insult because the court does not see clearly how he arrives at his conclusions, and suspects whatever it does not understand. The late Dr. R. Angus Smith complained of being "contemptuously compelled to herd with thieves and scoundrels in a witness-box." He adds: "I have seen barristers speaking to a scientific witness in such a way as to show that to them a witness was always an inferior person." Surely, every person who has been present at a technical trial, or has had to appear as an expert in a poisoning, a patent, or an adulteration case, will be able to confirm this from his own observation and experience.

Now it may, perhaps, be cynically hinted that men of science should be willing to bear all this annoyance for the public good. But is it for the public good? In the first place, not a few of the most eminent men in every department of science distinctly and peremptorily refuse to be mixed up in any affair which may expose them to cross-examination. "I will investigate the matter, if you wish it, and will give you a report for your guidance, but only on the distinct understanding that I am not to enter the witness-box." Such in substance is the decision of not a few men of the highest reputation and the most sterling integrity. Certainly it is not for the interests of justice to render it impossible for such men to give the court the benefit of their knowledge.

Further, the spectacle of two men standing contradicting or seeming to contradict each other in the interest of their respective clients is a grave scandal. Men of the world are tempted to say that "science can lay but little claim to certainty, and is rather a mass of doubtful speculations than a body of demonstrable truth." To us, at least, there is nothing more saddening than to read the trial of a notorious poisoner, or the report of a great patent case, especially if taken along with the comments of the press and of society on these occasions.

Here, then, we see that our present mode of dealing with scientific evidence is found on all hands unsatisfactory. The outside public is scandalized; experts are indignant; the bench and the bar share this feeling, but unfortunately are disposed to blame the individual rather than condemn the system.

But we fear that this unanimity of dissatisfaction will vanish as soon as a remedy is seriously proposed. To that, however, we must come unless we are willing to dispense with scientific evidence altogether.

As it seems to us, the expert should be the adviser of the court, no longer acting in the interest of either party. Above all things, he must be exempt from cross-examination. His evidence, or rather his conclusions, should be given in writing, and accepted just as are the decisions of the bench on points of law.—*Chemical News.*

AN ENGLISH VIEW OF AMERICAN MEDICAL SCHOOLS.—H. W. Jones, M.A., M.D. (U. S. A.), writes as follows to the editor of *Lancet:* "It is by no means uninteresting to a medical man 'abroad' to observe his own country and its institutions through the eyes of foreign authorities. And while we must confess to much that was questionable in the past, it appears at present that the case of medical education in the United States is hardly put with fulness—if, indeed, with fairness. As the effete doctrines of the early Church yet serve as the sceptic's best weapons, so now do the allegations which I here rehearse rise against the 'American system.' We are charged with 'inadequate preparation,' opening the schools to crude and undisciplined minds; with a 'too short and narrow curriculum,' giving insufficient and unbalanced foundation for so serious and important a superstructure; with 'poverty of clinical advantages,' committing students to an unpractical, and, therefore, untrue, view of their future duties; with 'the full degree conferred by any of the too numerous colleges after such a course.' Truly a sad catalogue of errors, if applicable now and generally to the institutions of any country. But a knowledge of all the circumstances will insure material alteration in the scope of these charges and a much closer approximation to the truth. Though I write without statistics at hand, and only from a general acquaintance with the facts acquired by long professional observation, I venture to state that more than half the American graduates have for many years gone out from the three great medical centres, New York, Philadelphia, and Boston, whither have gravitated for the same period the greater lights of the profession as practitioners, teachers, etc. These men, many of them of humble birth, self-taught, having elevated themselves to a great and noble success, do not forget their own origins, and are slow to place impediments in the way of those who have the same aspirations, the same difficult ascent to make. Hence, the moderate requirements of the preliminary examination to be followed in these schools by instruction not easily surpassed in breadth and accuracy, I am bold to say, whether it be didactic or clinical. Here hospitals are numerous and abounding in every variety of material. At Yale and the Cincinnati, Chicago, Michigan, St. Louis, and New Orleans schools the same is true, excepting the restrictions arising from moderate hospital accommodation, which will always vary with population. Here at least a third of the whole number of annual graduates receive their diplomas, and in most of these schools the final or 'pass' examination covers the entire field of study, determining the solid acquirements of the student, rather than what he may have 'crammed' during the weeks previous. In some cases the 'State Medical Society' exercises a wholesome supervision, its delegates taking active part in the oral tests applied to scholarship. Post-graduate courses are often open to the more ambitious student, and to such practitioners of long standing as may desire henceforth to restrict their work to special lines. To 'graduate into a specialty' is not with us *en règle.* It is the 'mushroom school' which gives rise to offences as rank in the nostrils of American as in those of foreign physicians. These spring up in the growing towns of the vast West, partly the offspring of local ambitions and rivalries, partly from a local demand for a not too costly medical instruction, made by the pupils and assistants of neighboring practitioners, or by youths who labor two-thirds of the year to earn the means of defraying the cost of a winter's tutelage in medicine. Few of these ever graduate, and, if they do, few fail to seek their diplomas at a more legitimate fountain-head. The schools themselves meet with early graves, though their example and warning are not long heeded. It is true that all who graduate from these State-chartered schools receive the degree of M.D., and are styled 'doctors,' but in no country in the world does a man so soon find his proper level, whatever his profession or diplomas. It is the absence of social caste, the subordination of influence to real merit, the general indifference to titles, the knowledge that, after all, success must be fought for, which make the American physician so oblivious of the initialed distinctions that obtain in England and elsewhere.

"After all is said, in these days, when science is of common birth and acknowledges no single foster-mother, we may safely claim to be known by our fruits, and one may proudly point to the just and able criticisms of your own columns upon works of American origin for highest testimony to the value and volume of American professional attainment and culture."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 14 TO SEPTEMBER 20, 1886.

WALES, PHILIP G., *First Lieutenant and Assistant Surgeon.*—Resignation accepted by the President, to take effect November 5, 1886.—*S. O. 212, A. G. O.*, September 11, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING SEPTEMBER 18, 1886.

SIMONS, M. H., *Passed Assistant Surgeon.*—Detached from the "Alert," and placed on waiting orders.

NORFLEET, E., *Passed Assistant Surgeon.*—Detached from the "Alert," and placed on waiting orders.

BOGERT, E. S., *Medical Inspector.*—Ordered to Navy Yard, New York, September 28, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING SEPTEMBER 18, 1886.

AUSTIN, H. W., *Surgeon.*—Granted leave of absence for thirty days, September 16, 1886.

GOLDSBOROUGH, C. B., *Surgeon.*—Promoted, and appointed Surgeon, from October 1, 1886, September 9, 1886.

YEMANS, H. W., *Passed Assistant Surgeon.*—Granted leave of absence for ten days, September 16, 1886.

BEVAN, A. D., *Passed Assistant Surgeon.*—Promoted, and appointed Passed Assistant Surgeon from September 1, 1886, September 7, 1886. Granted leave of absence for thirty days, September 7, 1886.

GLENNAN, A. H., *Passed Assistant Surgeon.*—Promoted, and appointed Passed Assistant Surgeon from September 1, 1886, September 7, 1886.

NORMAN, SEATON, *Assistant Surgeon.*—To proceed to Vineyard Haven, Massachusetts, for temporary duty, September 9, 1886.